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# PROGRAM OF POLICY STUDIES IN SCIENCE AND TECHNOLOGY

Seven-Year Review • 1966-1973

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# Statement of the Director

The Program of Policy Studies in Science and Technology was established in 1966 with the assistance of a generous institutional grant from the National Aeronautics and Space Administration for the specified purpose of developing a "University policy analysis capability." In the 1968-69 Report the Director of the Program described the interim activities and presented a tentative assessment of the performance of the Program for the first three years. This Statement reviews briefly the activities and operations of the Program with respect to its stated objectives for the seven-year period ending August 31, 1973.

A basic operational assumption of the Program has been that complex social problems usually cannot be properly managed by partial or specialized treatment or by "one-factor fixes." Such problems need to be considered within a context sufficiently comprehensive to identify significant relationships among variables, yet limited enough for adequate analysis. Hence, a major focus of the program was to be on the application of an interdisciplinary, problem-oriented capability to the performance of total social impact evaluations of the consequences of introducing new configurations, technological or otherwise, into future social environments. In turn, it was anticipated that the knowledge and analytical proficiency gained from studies, seminars, proceedings and publications would be converted into instructional materials, teaching techniques, and new curricular designs which could contribute to the strengthening of the University's academic programs.

The primary characteristics of the Program can thus be summarized as follows:

- Emphasis on interdisciplinary, problem-oriented analysis.
- Development of intra- and inter-institutional arrangements for the purpose of analyzing social problems, evaluating existing programs, and assessing the social impacts of prospective policies, programs, and other public actions.
- Focus on methodological approaches to the projection of alternative future social environments, the identification of the effects of the introduction of new policies, programs, or other actions into the social system, and the evaluation of the social impacts of such effects.
- Availability of analytical resources for advisory and research tasks, and provision for use of Program facilities as a neutral forum for the discussion of public issues involving the impact of advancing technology on social value-institutional processes.

A crucial element in the concept of the Program of Policy Studies was and is that its research and analytical efforts be directed to the actual on-going public policy process with special reference to the impact of advancing technology on participants, values, and institutions. The staff, of course, recognizes the need to develop conceptual schemes to serve as the organizing rationales for policy analysis tasks. But the essential mission of

the Program has been to address existing or emerging social problem contexts (whether at the Federal, state, regional, or local levels and whether relating to a particular phase or phases or to all phases of the Policy Formulation/Program Implementation process). In sum, it was not the original objective of the Program, nor has it been our practice, to assume intellectual/analytical tasks which have customarily been carried on by the established departments and professional schools of the University. It has rather been to devise means of assembling the skills representing all relevant disciplines and professions and integrating such skills into an articulated effort for a complete analysis of a particular problem (posited or presented).

### **Program Activities 1966-1973**

The effort of the staff of the Program (PPS) to implement the objectives-characteristics of the Program is reflected in the following recital of activities:

- A problem-oriented, policy analysis capability has been developed and the Program's professional staff has accrued considerable experience in social impact assessments as represented by numerous study reports, seminar proceedings, and professional papers.
- The PPS has maintained a basic core staff of 10-15 professionals which has at times reached a level of 35-40 professionals, including the participation of over 75 GWU faculty members.
- The PPS has usefully applied the talents of over 200 graduate and undergraduate students in the University.
- The PPS has presented over 85 professional seminars, including 16 separate series and 5 special seminars. Participation in these seminars has involved a wide range of representatives of the governmental, industrial, university and R&D communities.
- The PPS has published over 100 monographs, study reports, and books which have been widely distributed by the PPS and through the National Technical Information Service to interested scholars, policy analysis groups, Federal, state and local governmental entities, and governmental offices and private policy analysis organizations throughout the world.
- Members of the PPS staff have been invited as principal speakers for numerous Congressional hearings, professional association meetings, and various inter-

national conferences on topics involving science, technology, and public policy.

- The PPS provided a substantial part of the initial funding and has co-sponsored with the School of Public and International Affairs the Master's Degree Program in Science, Technology, and Public Policy. Over 60 students have participated in this academic, research and colloquia program in the past three years.
- The publications of the PPS have been used by numerous universities in their courses in the area of science and public policy and the Program regularly receives requests for assistance in the development of new courses or for the arrangement of meetings or for advice on policy analysis studies from individuals and groups in the U.S. and various foreign countries.
- The PPS has received in excess of 60 specific grants and contracts over the past 7 years.

### **Program Operations**

An interdisciplinary, problem-oriented approach to the analysis of public programs, projects, or other actions need not be considered to exist or not exist. There are various degrees of interaction which might be associated with given analytical efforts as well as varying combinations of skills and experience which might be utilized in a given effort. Policy analyses, including anticipatory project assessments, are not ordinarily performed or not performed; they are performed with varying degrees of adequacy or inadequacy. Within any given policy analysis group, some efforts will invariably be performed with a higher degree of proficiency than others for a variety of reasons, i.e., internal or external conditions and constraints.

Our experience over the past seven years has demonstrated that an interdisciplinary, problem-oriented approach to policy analysis may assume innumerable dimensions and forms. While a viable policy analysis program should have a basic core professional group of 12 to 15 for purposes of consulting on new proposals and reviewing projects in progress, it does appear that a readily available professional staff of approximately 20 would be optimum for a university-based policy analysis group such as we have attempted to develop. An extremely cooperative attitude by many members of the University faculty, who are not regularly associated with the Program, has served to provide a reservoir of professional knowledge and advice upon which the staff

has frequently drawn to extend its analytical resources.

One obvious outcome of our experience has been recognition of the need to tailor carefully the interdisciplinary group effort to the specific project. Those skills relevant to the project objective must be assembled. Our various projects have required a wide range of professional skill combinations. Certain projects have been broadly conceived and have required a full spectrum of skills, as, for example, the study on the Social Impacts of Future Civil Aviation Systems, an effort involving over 30 professionals and graduate students from a wide variety of disciplines and professions. The study staff on Laws and Regulatory Schemes for Environmental Noise Regulation was constituted primarily of lawyers, law students, and political scientists. But a follow-on study on Aircraft/Airport Noise Abatement Alternatives required a much broader professional representation including lawyers, land use managers, regional developers, community relations specialists, economists, aeronautical engineers, and those experienced in aircraft/airport operations. In brief, every policy analysis effort does not require the full staff of professionals who might be associated with a policy analysis group.

One of the disappointments of our experience has been the lack of success in gaining funding for several ambitious proposals which involved broad participation by faculty members in the University and, in certain instances, intensive efforts by professionals from other policy research organizations. In this sense, much of our interdisciplinary effort has come to naught. But even this experience has produced some benefits in gaining cooperative action and new insights from representatives of the various disciplines.

The program staff has found most of its work to be intellectually demanding, some exceedingly so. While good quality work usually requires time for in-depth research, analysis and reflection, we have also found that in most instances of "quick response" tasks, we have been able to perform a satisfactory analysis. Clearly, however, there is a limit to what can be done adequately under severe time constraints.

### **Changing Conditions Affecting Program Activities**

The original concept of the Program envisaged the assembly of a broad range of disciplines and professions to address problems relating to the impact of advancing technology on social processes. But as noted above, the oper-

ational context of social problem analysis requires a particular mix of skills for each specific project. This factor poses difficulties for keeping all members of a broad interdisciplinary staff continuously and usefully engaged. A resulting tendency is for those temporarily unoccupied with a program project to pursue special interests of their own. This potential distraction from a total problem analysis orientation toward particular areas of social problem interest, and specialized treatment of even these particular areas, becomes difficult to counteract unless there is either a continuing flow of problems to the organization which require the participation of the full staff or provision for continuity of funding for the staff to posit its own inquiries is otherwise provided. Indeed, full or essentially full dependence on grant and contract funding for new projects almost inevitably results in the development of specialized interests by staff members in order to take advantage of opportunities to match interests with available funding. Hence, organizational sub-groups having specialized analytical capabilities evolve. This centrifugal force can present a difficult problem of containment if the basic structure of a total social impact analytical capability is to be maintained.

As a result of constantly increasing and now substantially full reliance on grant and contract funds for operational support, the Program has found it necessary to accommodate to this integration v. fragmentation tension.

The structure of the Program has changed in recent years to take advantage of new research and analysis opportunities. The consequence has been the establishment of a variety of identifiable sub-groups within the Program, as for example:

- The *Technology Assessment Group*, devoted primarily to studies in the area of science, technology, and public policy (Coates)
- The *Educational Policy Group*, devoted to both domestic and foreign country educational policy issues (Margolin)
- The *National Advisory Council on Supplementary Centers and Services*, devoted to reviewing and evaluating Title III of the Elementary and Secondary Education Act of 1965 and reporting its findings to the President and the Congress (Kluempke)
- The *Innovation, Information and Analysis Project* supported by NSF, devoted to developing a comprehensive body of literature on technological innovation and pro-

viding related analytical support services (Tennant)

- The *Master's Degree Program in Science, Technology, and Public Policy* having academic association with the School of Public and International Affairs and research and colloquia association with the PPS (Logsdon)

The fragmentation of an interdisciplinary program staff into specialized sub-groups has not meant that continuing interaction of the full Program staff is no longer feasible. A useful level of control can still be maintained in terms of ability to assemble a relevant group of skills for purposes of proposal preparation or of project performance. It might be emphasized that the level of capability of a policy analysis group should be judged not only by an ability to perform certain types of policy analysis adequately but by the capability to assemble relevant skills for special projects or other purposes. The Program of Policy Studies has relied almost entirely on unsolicited proposals rather than upon responses to Requests for Proposals.

It is evident from previous comments that the Program has necessarily made an organizational response to external conditions including shifting subject matter interest of Federal agencies and sources and types of funding available to university-based policy analysis groups. Our Program organization has changed through time from a staff supported almost entirely from an institutional grant to a staff of sub-groups organized to deal with particular patterns of policy analysis tasks. Under this arrangement it is now incumbent upon each "group" to select its areas of prime interest, to prepare proposals and pursue funding efforts to support its activities, to assume responsibility for administrative tasks associated with its efforts, to arrange for necessary staff appointments, and to perform adequately the projects undertaken.

As noted, there are certain difficulties in this arrangement for the maintenance of intensive interaction within an interdisciplinary professional staff which is essential as a resource base for problem-oriented research. But there are also advantages in this arrangement. First, since the various "groups" share the same physical space, consultation and discussion are facilitated and various combinations of professionals can be assembled to consider new proposals or other policy analysis actions with trifling inconvenience. Second, the decentralization of effort with the sub-group structure assists with the determination of analysis missions, distributes, yet locates,

responsibility for particular actions, encourages initiative by a larger segment of the Program staff, and tends to generate quality control mechanisms within each "group."

One of the major difficulties confronting a program which must rely heavily upon grant and contract support is the limited ability to plan ahead. This in turn means that the involvement of desired faculty members is sometimes difficult to arrange since departmental or school commitments have frequently been made prior to the date a project becomes effective. Most faculty members of The George Washington University have been quite cooperative in assisting the Program staff in proposal preparation and project performance when their availability has permitted. An increasing number of faculty members tend to be interested in problem-oriented and action research. While the interdisciplinary approach remains to some extent at odds with the traditional university organizational structure, it is clearly consistent with a social problem focus. If a core group of capable and interested professionals can gain a limited degree of momentum, then the policy analysis function has a good chance of maintaining an effective level of effort even when adjusting to the constraints necessarily imposed by the university administrative/operational structure.

### **The Evolving Policy Analysis Function**

Assembling professional skills to perform social problem analysis for purposes of introducing the resulting outcomes into the public policy process is a very different task from that of the conventional academic function of producing and disseminating knowledge. Policy analysis involves the production of outcomes which are designed to clarify policy options and intended to have some impact upon socio-political decision making. One implication of this observation is that those involved in the policy analysis function should properly be judged by a somewhat different set of professional performance criteria than those customarily applied to the university faculty member. A combination of organizational skills and intellectual talents which differs appreciably from the normal demands made of either university faculty members or administrators is required of policy analysis principals. Hence, the question persists as to whether universities are appropriate loci for such efforts, or if some universities may be but most are not, or what other types of existing non-university or new institutional arrangements can better serve the objective of converting available knowledge and analytical resources into useful inputs to the public decision process. Assuming the availability

of the basic resources for a policy analysis effort, it is likely that each particular institution, university or other, will necessarily need to tailor its effort to the special conditions (opportunities and constraints) of its socio/institutional context.

It is certainly not our contention that all policy analysis should have a university base nor that every university should have a social problem-oriented research group. It is a matter of the perceived mission and resource availability of the particular university. We have found the Program's work both to be intellectually challenging and to require the development of organizational/analytical skills which are not often taught or utilized in the normal educational process. The critical difference is that the policy analysis function is ordinarily related to existing or projected social problem contexts requiring the assessment of alternative project configurations for the solution or alleviation of an unsatisfactory social condition. This task is a stimulating experience; it is also hard work. It should be recognized that there is a good deal of "cost" (professional effort as well as financial) attached to the operations of a policy analysis program. Such costs must be weighed against the prospective benefits to students, faculty, professional groups, and public service needs in evaluating the net benefit of such an activity to the particular university.

At The George Washington University we perceive a definite, if gradual, recognition of the need for activities in some manner related to the policy analysis function. New stimulus has been given to interdepartmental and interdisciplinary efforts through the Division of Experimental Programs. The various continuing professional activities in the educational and health policy fields carried on by the Institute for Educational Leadership seem a reliable index of the need for more systematic attention to the public policy process by universities in position to perform such functions. The location of the new American Bar Association Center for Administrative Justice at the University is still another component of a growing institutional development at The George Washington University which, along with the Program of Policy Studies and the Master's Degree Program in Science, Technology and Public Policy, could evolve into a substantial University effort in research and continuing professional education having a direct relationship to the public policy process.

It is perhaps apposite also to comment that the establishment and maintenance of a policy analysis capability concerns and depends

upon an effective interaction among all the participants and entities involved in the public decision process. However much the Congress or the Federal departments and agencies might need analytical support with such tasks as the preparation of NEPA §102(2) (C) statements or with special proposed projects, if the responsible officials in such agencies do not perceive the need or do not have the resources to engage the services of policy analysis groups, then the latter surely cannot develop a continuously improving analytical capability. The universities can be expected to develop useful policy analysis capabilities, only to the extent that they are encouraged to do so. On the other hand, the sponsor-consumer has both the right and duty to demand adequate performance.

Many indices point to a definite trend in interest and activity which may reasonably be categorized as "policy analysis." Academic interest is manifested in the rapid growth of professional periodicals and association meetings devoted to the general area of social problem-oriented analysis over the past few years. Much recent Federal and State legislation gives heavy emphasis to a wide range of environmental factors which pertain to "human" as well as to "natural" environmental quality. This means that the public sector agencies now have statutory mandates to consider new proposals for programs, projects, and actions in far broader terms than heretofore required. Further, many Federal departments and agencies now have offices of policy or of planning which provide added stimulation to the policy analysis function. And the Office of Technology Assessment, now established as a future-oriented analytical arm of the Congress, should provide a major focus for a growing policy analysis interest.

### **Future Directions**

It is anticipated that the continued focus of the Program's activities will be directed to analytical tasks involving the impact of advancing technology on societal institutional-processes. Attention will continue to be given to the basic Program objective of assembling interdisciplinary groups to perform future-oriented studies of the social impact of proposed programs, projects, and other public actions.

The Program staff has developed a number of different *methodological approaches* to the projection of alternative future social environments, the identification of the effects of new technological interventions into future social environments, and the evaluation of the social impacts of such effects. The competence of the staff in the application of these method-



ologies has reached a relatively high level and it is expected to continuously improve. Further, the experience gained by the professional staff in the numerous studies performed has equipped us to deal with a wide variety of *topical areas*, including: environmental impacts of major social-functional systems such as transportation, housing, solid waste management, etc.; legal/policy/economic conditions affecting the R&D and technological innovation processes; application of communications media to community services in both industrialized and developing nations; urban/regional land use planning including the application of Earth Resources Satellite data for such purposes; development and appraisal of regulatory schemes and mechanisms for the control of environmental noise; educational technology policy; Federal/State/Local governmental interactions in the regulation of new technological interventions; citizen participation in the evaluation of proposed technological projects, and so forth. The Program staff intends to continue its strong involvement in the technology assessment function.

It is also the intent of the Program staff to continue its *seminar series* on matters relating to technology assessment and other methodologies and activities involving the interaction of advancing technology and social process. Our *publications series* will also be continued but probably on a more limited level. We do plan to hold a continuing series of seminars on the evolving functions of the Office of Technology Assessment and to publish a series of papers on this activity.

The Program's activities over the past seven years have clearly served to identify and maintain a loose community of professionals in both public and private sector organizations who share common interests in the impact of science and technology on public policy. The Program's activities have supported new academic innovations in the University and have provided an opportunity for numerous faculty members and students to engage in analytical activities which have contributed to their professional interests and competence.

As noted, the continuing activities of the Program will depend largely upon the opportunities offered by sponsoring agencies for funded research, seminars, conferences and other events. In this regard, we continue to be optimistic. One further comment seems quite appropriate in this brief report, namely, the critical importance of the NASA "institutional support" funding which enabled the Program to generate the momentum for a sustained effort. Having observed the rise and fre-

quent demise of many other university-based, problem-oriented groups over the past several years, it is difficult to see how such programs could reasonably have been expected to become viable, on-going operations without substantial initial funding—in addition to other requisite conditions such as an interested professional capability and a favorable university environment. The NASA grant not only provided this Program with the ability to establish a fairly broad interdisciplinary policy analysis capability but supported our publication series and professional seminars which have been effective means for establishing Program visibility and recognition. For this funding support and the continuing interest of both past and present members of the NASA staff we are indeed grateful.

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# Advisory Committee

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The George Washington University

# Background and Organization

Policy analysis is one essential means of coping with the needs of a complex, dynamic, and demanding society. Policy analysis is indispensable both for the effective treatment of existing social problem areas and the performance of future-oriented studies of alternative means of achieving select or provisional social goals. Complex social problems cannot be properly managed by partial, specialized, or arbitrary means. One-factor fixes seldom work. Social problems must be considered within a context sufficiently comprehensive to identify significant relationships, yet limited enough for adequate analysis. Analyses in turn, to be useful to policy makers and affected public participants, must include precise, realistic presentations of options, strategies for implementation, and probable outcomes in terms of effects on participants, social values, and institutions.

## Policy Analysis at the George Washington University

It is from this perspective that the Program of Policy Studies in Science and Technology has developed a special capability for policy analysis. The focus of the Program on science and technology has resulted in the creation of various methodologies for conducting *total social impact evaluations* of technological applications. These concepts and skills are generally applicable to the policy formulation and program evaluation phases of the ongoing public decision process. The knowledge and analytical proficiency gained from research projects are converted into teaching materials

and new curricular designs which contribute to the strengthening of the University's academic programs. These mutually supporting functions are achieved through studies, seminars, and publications distributed as a public service.

## Program Resources

Essential resources for effective policy analysis include location, institutional setting, facilities, and professional skills. The location of The George Washington University places it in easily accessible reach of the Congress and most Executive Departments and Agencies of the Federal Establishment. The Program of Policy Studies is a University-level entity responsible directly to the President of the University. The Program has close working relationships with all major Professional Schools and other components of the University including the library and data processing services. The Program draws upon a broad range of professions and disciplines:

- Public Administration
- Public Law
- Political Science
- International Affairs
- Sociology
- Economics
- Educational Psychology
- Business Administration
- Urban & Regional Development
- Land Use Management
- Operations Research
- Cybernetic Systems
- Medical & Biological Sciences
- Engineering and Applied Science

## Organization

As the Program evolved in recent years, the structure has changed to take advantage of new research and analysis opportunities. Thus the following sub-groups within the Program have been established:

## EDUCATIONAL POLICY GROUP

In 1966, a special group within the Program was established for the study and development of programs in formal and non-formal education. This center, the Educational Policy Group, is engaged in a multiple approach to education in the United States and in the technologically developing nations of the world, including:

- a) the process of policy development in education;
- b) the assessment of the effects of new educational technologies and their potential for society and the individual;
- c) the development of new strategies for the application of communication technology to education in many nations;
- d) educational program development;
- e) the study of improved methods of educational innovation, as well as techniques for dissemination and utilization of educational methods and materials;
- f) study of the effects of learning settings, materials and their interaction on the process of education;
- g) the development of method and practice for facilitating the cooperation of educational problem solvers from various disciplines and cultures in cooperative endeavors.

The foci of educational activities are diverse. They include approaches both within and out of schools; the particularized demands of rural, as well as urban education; the special areas of basic education, preschool programs and learning by the physically, emotionally or mentally handicapped; adult and adolescent vocational training.

From its inception, the Educational Policy Group has been intensively involved in the applications of the communication technologies not only to formal education, but also to education in related fields (e.g. nutrition, family planning, public health), and in devising strategies for the organizations and systems involved in their delivery. Studies include applications of various communication media from computers to satellites, CATV to the tape recorder, as well as filmstrips and picture-dominated printed materials.

Critical communication technology issues that have been confronted include: which media to select for what purpose; which media for what audience; how broadcast media can be utilized while tailoring programs to local and individual learning needs; how to develop modules to allow for optimal program mix; how to

develop modules for broad use while allowing cultural adaptations; how to shift content over time to keep abreast of changing conditions and audiences. Legal, sociological, economic and behavioral-motivational issues are confronted, as well as those directly associated with the educational process.

The EPG is a multidisciplinary organization with capabilities in education, economics, political science, international affairs, management, several areas of engineering, linguistics and system design. Its R&D activity has been directed by a combination of defining sound objectives and creative conceptualization. This approach tailors research and program design to the real needs of the problem and its solution, rather than being geared to disciplinary principles or boundaries. The several disciplinary areas are integrated in the pursuit of sound and holistic solutions and alternatives.

Over the years, members of various disciplines have learned to cooperate in the application of effective methods for solving problems. Instead of remaining specialists in a conventional discipline, staff members have become expert in need assessment, the diffusion of innovation, facilitation of utilization, and evaluation and policy development. These have been applied to the development of communication systems, to many areas of education including basic and informal education, to family planning, to new town and urban program development, etc. The EPG approach has been innovative and is generally based on the development of new methodology as well as on advanced system design. Through this system design, a wedding is being undertaken of the capabilities of the communication media (hardware and software) with the now broadening field of educational research. Fundamental to this marriage is a more complete understanding of applications of the behavioral and social sciences to individual and social development and the many aspects of learning.

During the past five years, the following major projects have been completed:

- "Education in the '70's—a study in educational technology"
- "The Dissemination of Audio-visual Materials in American Education."
- "Strategies for the Use of Mass Communications Media in the Technologically Developing Nations."

Strategies were developed for utilizing communications media to bring family planning, basic education, and nutrition education programs to the rural and urban poor. General principles and programs were developed in

the fields of family planning, nutrition, and basic education and were then applied more specifically to Colombia, the Republic of Zaire, and Indonesia. The product includes consultation strategies designed for the process of cooperative work between nations, as well as programs, training and evaluation strategies.

- "Social and Behavioral Science Development in Higher Education" (Consultation to the American Institute for Research and to the Universidad Nacional Pedro Enríquez, Dominican Republic).
- "Civil Aviation 1970-1985: Behavioral and Sociological Factors"
- "CATV—Systems and Audiences"
- "Alternatives for the Application of Communication Technology to the Educational Needs of the Democratic Republic of the Congo." A combined USAID—UNESCO mission requested by the government of Congo-Kinshasa.
- A Market Analysis of American Education.
- "Survey and Evaluation of the Usefulness of Picture Booklets for Family Planning Education Among the Poor in Rural and Urban Colombia."
- "Implementation Plan for a Colombian Rural Family Planning Training Center and Field Network: Information, Motivation, Communication and Distribution."
- "A Plan for Extending Family Planning Capabilities in El Salvador through the Application of Strategies for Utilizing Communications Media to Improve the Training of Personnel."
- "The Decentralized and Continuous On-the-job Training of Field Workers in Indonesia—a Near-Peer Teaching and Small Communications Technology Approach."
- "Primary Prevention in Health Care Assisted by Communications Media: A Program for the El Salvador Social Security Institute."
- "Improving Family Planning Communications through Strategies for Using Educational Technology"—a plan for the University of Costa Rica Latin American Training Program.
- "Computers in the Classroom" was published in September 1970.
- A second volume, devoted to educational technology systems and the dissemination and utilization of educational technology materials is in preparation under the auspices of the Ford Foundation.

Joseph B. Margolin, Ph.D., is Group Director  
Marion R. Misch is Deputy Director.

## INNOVATION INFORMATION AND ANALYSIS PROJECT

The Project began in early 1973 with the receipt of the first grant of the National Science Foundation's National Research and Development Assessment Program (RDA), which was created in August 1972 largely because of the increasingly urgent need to examine Federal support of civilian research and development efforts and to assess policies and programs designed to stimulate the rate and direction of technological innovation. The major objective of the Project (IIAP) is to build a coherent system for collecting, analyzing, and disseminating information on innovation. This includes looking into such Government policy areas as tax incentives, subsidies, trade, pertinent laws, patents, and regulation as well as the social and economic implications of innovation and the nature of the innovation process. In addition, the Project plans to provide special analytical, communicative, and educational services to its clients.

With no broad-gauged management of innovation information in existence, the need for IIAP is clear. The aim is to search and synthesize information from present sources by utilizing their services and complementing their efforts. During this operation an analytical capability will be developed which can assist in numerous ways including identification of the most relevant and significant existent literature and gaps to be filled.

Since its formation the Project has directed all of its activities toward the needs of RDA. In the near future, IIAP will begin to expand its information and analytical services to meet the needs of other people and organizations for the cost of the service.

The Project is currently able to identify and abstract articles, research reports, books, conference reports, and related materials on technological innovation. The field, its literature, and attendant management problems have never before been brought together in a concerted, comprehensive manner. Initial efforts included determining:

- those journals, periodicals, indexing/abstracting services, bibliographies, conference proceedings, books, and report literature containing relevant information;
- the optimal way of extracting information from these sources;
- the types of abstracting methods to be used; and
- how information about articles not abstracted should be disseminated.

Although many of the end products will continue to be oriented toward meeting the direct needs of RDA, a major purpose of the Project, strongly supported by the National Science Foundation, is to ensure that IIAP and its products will be of maximum use to other clients.

Acquisition lists and abstracts are being supplied to the Foundation on a regular basis. Other interested parties may receive copies of these and other products and services, on a cost-reimbursement basis according to the provisions of the initiating grant from the Foundation. It is anticipated that the IIAP Newsletter will be available free of charge for the immediate future.

As IIAP establishes and demonstrates the effectiveness of its information services, it will begin to expand its scope and magnitude of effort. Some of the activities may include:

- distributing information products (bibliographies, abstracts, etc.) tailored to the individual needs of the clients;
- achieving the capability to work with government agencies and the private sector to assist in the evaluation of a particular policy or program directed to stimulate innovation;
- providing a periodic journal or monograph series on evaluations of policy assessment, special reports and studies on assessments and annual reports on trend analysis;
- documenting legislation, executive orders, and regulatory actions that have created and modified major governmental policies and programs to stimulate or control the nature and rate of technological innovation;
- sponsoring and cosponsoring seminars, special meetings, conferences and short term instructional courses and workshops; and
- collecting a manpower or biographical file of those who are professionally involved with many of the problems associated with the innovation process.

*Wesley L. Tennant*, Senior Staff Scientist, is Project Manager.

*Judith C. Russell* is Chief Information Specialist.

## GRADUATE PROGRAM IN SCIENCE, TECHNOLOGY AND PUBLIC POLICY

The graduate program in science, technology, and public policy was established in September, 1970 to provide a focused educational complement to the other activities of the Program. The graduate program, which is co-sponsored by the university's School of Public and International Affairs, is one of the few in the nation to offer a master's degree specifically in science, technology and public policy. It is currently the largest such program (in terms of students seeking a degree) in existence. Fifty-three students have enrolled in the program to date, and in addition a number of doctoral candidates have made science policy a particular focus of their course work and dissertation research. Eight students had received their master's degree as of September 1, 1973.

The primary objective of the graduate program is the training of individuals able to understand the public policy issues posed by science and technology and to act upon that understanding. To that end, the program draws upon the total resources of the university, both in terms of faculty and courses and in terms of research capabilities, in permitting its students to develop multidisciplinary programs of study tailored to their interests and needs.

Students who complete the degree program are qualified for research and administrative positions related to science and technology policy, particularly with government agencies. Students from the program now hold positions with the National Science Foundation, the Environmental Protection Agency, the Science Policy Research Division of the Library of Congress, the Department of State and the United Nations. Also, many of the students in the program already hold jobs in related policy areas with such agencies as NASA, the military services, congressional offices, and COMSAT; these students bring a practitioner's viewpoint to the program as they carry on their own studies.

As part of the program's activities, several courses have been added to the university's offerings on topics such as "Government, Science, and Technology," "Technology Assessment and Public Policy," "Science, Technology and World Order," and "The Economics of Technological Change." These courses are taken by a wide variety of graduate students other than the program's degree candidates. The program's faculty is also involved in undergraduate teaching related to science and technology policy.

The program is directed by John Logsdon, Associate Professor of Political Science and Public Affairs. Other faculty members associated with the program include its deputy director, Henry Nau, Assistant Professor of Political Science and International Affairs; George Eads, Associate Professor of Economics; and Stephen Chitwood, Associate Professor of Public Administration. At its inception the program was directed by John Hanessian, formerly Associate Professor of International Affairs. Dean Burton Sapin of the School of Public and International Affairs is responsible for overall direction of the academic elements of the program.

Faculty members associated with the program are also involved in research efforts in which the program's students frequently act as research assistants. Among these research activities are:

- a study of the decision-making process with respect to post-Apollo space policy (Logsdon);
- an examination of changing national priorities and public policy for science and technology (Logsdon);
- a book on "International Technology and National Politics," focusing on nuclear technology programs (Nau).

The program sponsored a series of seminars during 1972-1973 on "U.S. National Goals and Technological Strategy." These seminars brought together members of the Washington policy community, faculty and research staff of the university, and the program's graduate students to discuss presentations by a series of eminent speakers.

The program's research, seminar, and curriculum development activities were supported by a grant of \$116,900 awarded in July, 1972 from the National Science Foundation.

## NATIONAL ADVISORY COUNCIL ON SUPPLEMENTARY CENTERS AND SERVICES

The National Advisory Council on Supplementary Centers and Services consists of twelve members appointed by the President of the United States under provisions of the Elementary and Secondary Education Act. The responsibilities of the Council as mandated by the Act are to review the administration of Title III, to evaluate programs and projects carried out under Title III, and to report annually to the President and the Congress on its findings.

Title III provides federal funds to local education agencies for innovative programs and projects designed to meet locally identified educational needs. More than one thousand projects in all areas of the elementary and secondary curriculum are currently operating in all parts of the United States and its territories.

The National Advisory Council meets some five times a year to review the operation of Title III and to set policy for Council activities. The Council maintains an office and staff in the Program of Policy Studies of The George Washington University for the purpose of carrying out its activities.

Each fiscal year since 1968, the Council has prepared and submitted to Congress and the President an annual report which makes recommendations concerning the legislation and the administration of Title III. Since 1970, the Council has published a monthly newsletter designed to inform the Title III community of national developments affecting education and of the activities of Title III projects and state administrators. The newsletter has a distribution of 3000 copies.

The Council also prepares and publishes *Quarterly* publications in magazine format, each reviewing and listing Title III projects in a specific curriculum area. Beginning with a Spring, 1972, issue, these have been:

"Title III in Environmental Education"

"Title III in Preschool Education"

"Title III and the World of Work"

"Title III in Guidance and Counseling"

"Title III and Changing Educational  
Designs"

The Summer, 1973, issue, "Title III and Cultural Diversity," reviews projects in bilingual education and ethnic studies. The Fall, 1973, *Quarterly* is devoted to Title III projects in educational administration and management.

The Winter, 1973, issue is on "Title III in the Arts."

In addition to the newsletter and the *Quarterlies*, the Council prepares occasional background research papers, prepares and presents testimony relative to Title III in Congressional hearings, and represents Title III in various national, regional, and state meetings of educational groups.

The staff is as follows:

Gerald J. Kluempke, Executive Director

Virginia Robinson, Research Associate

Gail Gross, Secretary

As of January 1974 the Council's new location is 425 Thirteenth St., N.W., Suite 529, Washington, D. C. 20004 (Tel. 963-3813).



## TECHNOLOGY ASSESSMENT GROUP

Technology Assessment has been a major focus of The Program of Policy Studies since its inception in 1966. Much of the Program's work during the first years under the NASA Institutional Grant consisted of theoretical, methodological, institutional, and historical studies of Technology Assessment.

Dr. Mayo and other members of the staff provided analysis and advice to Congressional Committee staffs planning for what has become the Congressional Office of Technology Assessment, testified at Congressional Hearings, and participated in and made presentations before numerous academic and professional meetings concerned with Technology Assessment. The Program has held some 80 seminars on the subject, attended by several hundred government officials, academic personnel, and members of the research and policy analysis community. A large number of Program publications dealing with technology assessment have contributed to the technology assessment literature widely used in the U.S. and abroad.

One of the earliest major technology assessments, performed by the Program, was a study of Social Impacts of Civil Aviation, a part of the DOT-NASA Civil Aviation Research and Development Policy Project (CARD) in 1969. More recently Technology Assessment efforts have been given organizational focus in the Technology Assessment Group. The objectives of the Group are:

- To assist Federal agencies, State and local governments, and the private sector in planning, organizing, and carrying out technology assessment by providing an interdisciplinary university-based capability experienced in assessment and policy analysis;
- to contribute to the further development of technology assessment methodology, to understanding of the institutional and legal aspects of technology assessment, and to knowledge of the results and impacts of technology assessment;
- to make such contributions available to decisionmakers, to the academic and professional community, and to the public through presentations, articles, and sponsorship or participation in conferences and workshops on technology assessment;
- to involve students in performance of technology assessment, and to contribute to their professional training and to cur-

riculum development in the university and elsewhere; and

- to develop useful Program publications in the area of technology assessment.

The Technology Assessment Group has undertaken a range of assessments of which the following are examples:

- "Technology and Public Policy: The Process of Technology Assessment in the Federal Government." An analytical survey of assessment activities and techniques in 110 Federal offices. (NSF)
- "Technology Assessment of Solid Waste Management Practices." An assessment of solid waste management and its institutional problems in the City of Baltimore, Maryland. (NSF)
- "Quick-Response Survey of Technology Assessment Candidates and Priorities." A survey by questionnaires and interviews of Federal officials to determine candidate technologies for future assessment. (NSF)
- "Implications of Soviet Marine Expansion." Assessment of recent developments in sea-power of the U.S.S.R. (ONR)
- "Plan for Local Community Participation in Measurement of Environmental Noise." A sub-contract to Bolt, Beranek, and Newman, Inc., to participate in developing plans for a National survey of environmental noise. (EPA)
- "Alternative Future Life-Styles: Their Implications for Future Energy Demand." (Ford Foundation Energy Policy Project)
- "Revitalization of Small Communities: Transportation Options." (DOT)
- "Normative Systems Analysis." An assessment of the potential of normative analysis with regard to rationale and technical conduct of comprehensive approaches to urban studies (HEW/NIMH)
- "Evaluation of Guidelines and Noise Related Environmental Impact Statements." Analysis of treatment of environmental noise in Environmental Impact Statements submitted by Federal Agencies under the National Environmental Policy Act (EPA).
- "An Integrated Strategy for Aircraft/Airport Noise Abatement." Analysis of legal/institutional considerations in implementation of EPA responsibility under Section 7 of the Noise Control Act of 1972 (EPA).

- “Federal, State, and Local Mechanisms for Control of Environmental Noise.” A survey and analysis of existing laws, policies, and institutional arrangements for abatement and control of noise at all levels of government (EPA).

The Technology Assessment Group includes specialists in Political Science, Law, Public Policy, Urban and Regional Planning, Economics, Community Development, and Transportation Regulation. It works closely with other Groups within the Program on a wide variety of research areas and projects.

Emphasis in Technology Assessment Group projects is on futures research, social impact analysis, and analysis of public policy options. Vary T. Coates, Ph.D., is Head of the Technology Assessment Group.

# Completed and Ongoing Studies

These studies are listed in chronological order of starting date. Funding source is shown in brackets after title of each project.

	<b>Title/Sponsor</b>	<b>Staff</b>
1. 1966 September (36 months) Aug. 1969	<b>Organizational Conflicts of Interest in Government Contracting (NASA)</b> A report containing an analysis and evaluation of the facts developed in the study and conclusions on (a) the effectiveness of the policy and regulations under which NASA operates and the application thereof, and (b) the desirability to effect changes, modifications or implementation to any policy, rule, or regulation dealing with organizational conflicts of interest in government contracting, together with recommendations as to remedial action to be taken.	<i>Principal Investigator</i> John Cibinic, Jr.  <i>Research and Support Staff</i> Malinda Clark Gilbert Ginsburg Arthur Miller Ralph Nash Susan Prager  <i>Student Researchers</i> Richard Kempaner Jesse Laskin William C. Wolfe
2. 1966 September (36 months) Aug. 1969	<b>Program in Law, Science and Technology in the Graduate School of Law (NASA)</b> To establish a Law, Science and Technology Institute at The George Washington University, to include: <ul style="list-style-type: none"> <li>• Establishment of a selected LL.M. program in Law, Science and Technology;</li> <li>• Development of several new courses including:               <ul style="list-style-type: none"> <li>a. The impact of scientific concepts on legal-policy decision process;</li> <li>b. Inter-governmental aspects of technological progress;</li> <li>c. Legal protection against technological risk;</li> <li>d. International institutional arrangements devoted to the peaceful uses of science and technology</li> </ul> </li> <li>• Conduct of public conferences and professional seminars;</li> <li>• A graduate fellowship program.</li> </ul>	<i>Principal Investigator</i> Harold P. Green  <i>Student Researcher</i> Michael J. Wollan  <i>Lecturers</i> Jack Oppenheimer Herbert Tenzer Peter Wyckoff

<b>3.</b> <b>1967 February</b> <b>(9 months)</b> <b>Oct. 1967</b>	<p><b>Title/Sponsor</b></p> <p><b>Education in the Seventies—A Study of Educational Technology (HEW/OE)</b></p> <p>A study and description of model school systems of the next decade, utilizing computer-assisted instruction (CAI). To bring to bear the experience, thought, and creativity of a wide range of educators, scientists, and administrators in the service of developing model educational systems in the 1970s in which CAI and related technology play a significant role, the participants were conducted on a traveling seminar designed to expose them to the state-of-the-art in CAI. They then prepared reports on their reactions, developing their impressions of education in the 70s.</p>	<p><b>Staff</b></p> <p><i>Principal Investigator</i> Joseph B. Margolin</p> <p><i>Research and Support Staff</i> Barbara V. Higgins Christine McLean Marion Misch Mary Moxness Susanne Thevenet</p> <p><i>Consultants</i> Ray C. Carpenter Don A. Cook Frederick Duhi Russell Kropp Gary Larsen Judith Leitner Hylan Lewis Eugene McDonald Phyllis McDonald Eugene P. McLorne Wesley C. Meierhenny Alexander Schure Charles B. Thomsen Elizabeth C. Wilson</p>
<b>4.</b> <b>1967 May</b> <b>(51 months)</b> <b>July 1971</b>	<p><b>Technological Innovation Policy</b> (National Bureau of Standards &amp; US Arms Control and Disarmament Agency)</p> <p>This project is devoted to enhancing understanding of the processes of technological innovation in society as an aid to policy makers. The first phase produced a conceptual systems model. The second phase applies the systems model as an aid in appraising existing and proposed public policy regarding technological innovation. The emphasis is on policies, designed to foster technological innovation in the civilian sector of the economy, which are responsive to the needs of society. Within this framework the project focuses on the problems of converting scientific and technical resources from defense-related research, development, and engineering to civilian, socially-oriented programs and projects.</p>	<p><i>Principal Investigator</i> Ellis Mottur</p> <p><i>Research and Support Staff</i> Roxanna Johnson Pamela Lucas Carolyn Vetter</p>
<b>5.</b> <b>1967 June</b> <b>(11 months)</b> <b>Apr. 1968</b>	<p><b>Preparation and Evaluation of a Series of Papers for Presentation to the Commission on Marine Science Engineering and Resources (COMSER)</b></p> <p>This project includes three separate but concurrent tasks. Task A consisted of a review of published studies on the organization of Federal programs in science and technology. Task B consisted of a review of civil and military interests in and responsibilities for advancing new technologies, with particular reference to the development of a national marine science program. Task C consisted of a review of the interests of the public and private sector in advancing new technologies, and of the means for bridging these interests and for facilitating the transfer of technology.</p>	<p><i>Principal Investigator</i> Clarence Danhof</p> <p><i>Research and Support Staff</i> Pamela Rugg</p> <p><i>Consultants</i> Fred Brown Stephen Chitwood Enid Schoettle</p>

6. 1968 June (16 months) Sep. 1969	<p><b>Title/Sponsor</b></p> <p><b>Evaluative Mechanisms for the Public Experimental Program of the National Endowment for the Humanities</b> (National Endowment for the Humanities)</p> <p>To explore alternative evaluation models to be developed for and tested within the Experimental Regional Grants Program of the National Endowment for the Humanities.</p> <p>The Experimental Regional Grants Program provides small experimental grants to various types of institutions in different parts of the country to conduct a variety of humanities-related activities on a regional and local level. To provide policy guidance for future programs, each experimental activity must be documented and assessed. The alternative evaluation models approach will utilize varying measurement techniques and should enhance understanding of each experimental project. More importantly, the results should provide insights to the complex questions of the evaluation and measurement of public supported social action programs in the humanities.</p>	<p><b>Staff</b></p> <p><i>Principal Investigators</i> Guy Black James Mahoney</p> <p><i>Research and Support Staff</i> Linda Rosenthal Patricia Tangas Mary Helen Whalen</p> <p><i>Consultants</i> Marie Bestul Susan Klaus Juanita Wallach David Weeks Isaac Welt Geraldine Woolldridge</p>
7. 1968 June (21 months) Feb. 1970	<p><b>Dissemination of Audiovisual Materials in American Education (HEW/OE)</b></p> <p>The basic objectives of this project are: (a) to develop methods for improving the dissemination of, and the effectiveness of information about, the availability of government-sponsored, non-written materials; (b) to develop alternative methods for increasing the effective distribution of government-sponsored nonprint materials.</p>	<p><i>Principal Investigator</i> Joseph B. Margolin</p> <p><i>Research and Support Staff</i> Helen Ajay Clarence H. Danhof James E. Mahoney Phyllis McDonald Barbara Merrill Marion Misch Margaret Moss Nan Motolinsky Diane Pierce Linda Taylor</p> <p><i>Student Researchers</i> Kathryn Hensley Jenny Johnson Mary Elizabeth McIlvane Isolde Weinberg</p>
8. 1969 July (18 months) Dec. 1970	<p><b>Behavioral Systems Approach to the Prevention and Control of Delinquency and Crime (Justice/LEAA)</b></p> <p>The current operations of our urban institutional complex composed of schools, police, courts and corrections, utilize procedures that amplify conditions of deviant and criminal behavior. In relating public institutional actions associated with the processing of juveniles through the juvenile control system, an analytic model was utilized, guided by a general systems approach. The District of Columbia institutional network was studied for this purpose. The Juvenile Control System (schools, police, courts, juvenile correctional institutions) was described consistent with the theoretical approach developed. Administrative data was employed to demonstrate the nature of breakdown of social control within the general system. Manifestations of this breakdown occurred at fairly early points (grades 3-6) and it was during this same period that the use of drugs was found to be employed in controlling certain youths.</p>	<p><i>Principal Investigator</i> Joseph L. Tropea</p> <p><i>Research and Support Staff</i> Thomas Burns Charlotte Kuenen John Mahoney</p> <p><i>Student Researchers</i> Susan Ames Bernard Grochmal E. D. Marwick Margaret Raskin James Thomas</p>

<p>9. 1969 June (15 months) Aug. 1970</p>	<p><b>Title/Sponsor</b></p> <p><b>Trends in Western European Political, Economic, and Defense Policies, 1969-1985, and Implications for U.S. Security and Strategy (Battelle)</b></p>	<p><b>Staff</b></p> <p><i>Principal Investigator</i> John Hanessian</p> <p><i>Research and Support Staff</i> Clarence Danhot Stuart Greenberg Barbara Higgins Robert Jordan Margo von Kaenel John Logsdon Susan Papadopoulos</p> <p><i>Student Researchers</i> Thomas Bolle Susan Croft William Kallon Norma Katelvero Jeffery Lennard Diane Moore Leleta Naugle Neil Seldman Meredith Spencer Janice Udell Christine Young</p> <p><i>Consultant</i> Katherine Warden</p>
<p>10. 1970 February (13 months) Feb. 1971</p>	<p><b>Study of Private-Federal Research and Development Relationships (NSF)</b></p> <p>To complete the analysis of data collected in 1965-7 from industrial research and development laboratories in three industries, for the purpose of determining the impact on the performance of research and development by those laboratories from involvement with the federal government.</p>	<p><i>Principal Investigator</i> Guy Black</p> <p><i>Research and Support Staff</i> Betsy Amin-Arsala Susan Doscher Eileen Sussman</p>
<p>11. 1970 February (15 months) Apr. 1971</p>	<p><b>A National Criminal Justice Reference System (Justice/LEAA)</b></p> <p>A two-phase research effort, (i) to identify appropriate user groups, isolate their most critical reference needs, and develop an outline-type design of a dissemination system which will fill some of the most immediate needs; and</p> <p>(ii) assuming the development of an active dissemination program by the Law Enforcement Assistance Administration, assessment mechanisms were developed to measure utility of the services as they expanded. More detailed user needs studies were performed using the indepth techniques of information flow and decisional analysis. In addition, exploration was made of ways to educate potential users in the benefits to be derived from using information.</p> <p>The model for an information reference system recommended in the final report of this study was the basis for a system now being used and national in scope, and which is broadening into international application.</p>	<p><i>Principal Investigators</i> James E. Mahoney David Weeks</p> <p><i>Research and Support Staff</i> Linda Rosenthal Patricia Tangas Mary Helen Whalen</p> <p><i>Consultants</i> Marie Bestul Susan Klaus Juanita Wallach Isaac Welt Geraldine Wooldridge</p>

# COMPLETED AND ONGOING STUDIES

<p>12. 1970 April (16 months) July 1971</p>	<p><b>Title/Sponsor</b> <b>Social Impacts of Civil Aviation and Implications for R&amp;D Policy (NASA/DOT)</b></p> <p>This study was to identify social impacts, both beneficial and detrimental, which would or could flow from introduction of advanced civil aviation systems. This future-oriented technology assessment was performed by an inter-disciplinary team of social scientists, natural scientists, and engineers, and a broad range of social impact areas was investigated which included economic, environmental, political, sociological, psychological, legal, and urban/regional developmental factors. In keeping with the fundamentally inter-disciplinary nature of such a study, the results are presented primarily in their finally integrated form rather than as a compilation of separate disciplinary inputs.</p>	<p><b>Staff</b></p> <p><i>Principal Investigator</i> Louis H. Mayo</p> <p><i>Research and Support Staff</i> Betsy Amin-Arsala Marie Beaconsfield Karen Bell Penny Blum James N. Brown Vary T. Coates Clarence H. Danhof Susan Doscher Richard F. Ericson Joseph Foa Kathryn Hensley Mary Holman Jacquelyn Howard Raphael Kasper Susan Klaus Eva Maestas James E. Mahoney Joseph B. Margolin Phyllis McDonald Marion R. Misch Jean Ruffin Henry Solomon Theodore Suranyi-Unger Linda Taylor Mary Helen Whalen Geraldine Wooldridge</p> <p><i>Student Researchers</i> Margaret Chan Ruth Cooperman Kirk Dublin William Fischer Phillip Graham Stuart Greenberg Dee Ann Houston Stephen Lingenfelter Michael Smith Marion Stirling Edward Studholme Frederick Wood</p> <p><i>Consultants</i> Joseph D. Blatt George Brankey Richard Myrick Manen Olson, Jr. Howard Reese Robert C. Richardson Stephen G. Saltzman Richard E. Tiller</p>
<p>13. 1970 April (26 months) May 1972</p>	<p><b>Dissemination and Utilization of Educational Technology Materials (Ford Foundation)</b></p> <p>To prepare for publication data collected for a report to the U.S. Office of Education on the "Analysis of the Need for and Feasibility of More Effective Distribution of Government Supported Non-Written Material." Since the data collected far exceeded the objectives of the contract, and the findings are of value to education, this book will provide an understanding and some clarification of 1) the dynamics of the dissemination process in education, 2) the role of non-book media in education, and 3) educational technology systems management.</p>	<p><i>Principal Investigator</i> Joseph B. Margolin</p> <p><i>Research and Support Staff</i> Karen Bell Kathryn L. Hensley Phyllis McDonald Marion R. Misch</p>

14.  
1970 June  
(16 months)  
Sep. 1971

**Title/Sponsor**

**Homeowner's Title Registration Corporation:  
A Program to Reduce the Land-Related Costs of  
Housing (HUD)**

To present a system of land acquisition and use which is designed to significantly reduce the cost of land in residential building costs; to make the real property transfer from one owner to another easier, quicker and less costly; to attract mortgage funds from contract thrift institutions regardless of the fluctuations of the general financing market; and to permit those government subsidies that are involved to be made in the form of investments, carrying at least a sound potential for eventual recoupment of the subsidies.

Finally, while the system incorporates as a basic concept the leasing of land for residential purposes rather than the traditional ownership of land, it is designed to keep the fee ownership in the private hands of a neighborhood or community, with individual parcel occupants acquiring a stockholder-type participation in the land asset as a component element in their purchase of a use of the land. For all practical considerations, the purchased use will provide the same functions now available to the individual through acquisition of a fee title, while eliminating some of the detrimental aspects of a fee holding.

**Staff**

*Principal Investigator*  
James M. Brown

*Research and Support Staff*  
Judith Bowen  
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Ozella Gissendanner  
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*Student Researchers*  
John Davidson, Jr.  
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Aaron Silberman  
Gregory Tassey  
Fred Wolf, III

*Consultants*  
Wm. J. Poorvu  
G. Daniel Prigmore

15.  
1970 July  
(36 months)  
June 1973

**Technology Assessment Implementation Project  
(NSF)**

A study to place some effort on the understanding of the implementation process as opposed to the performance of technology assessment, since the value to society of any technology assessment depends upon the ways in which its results are used. The objective of the project was to describe the process of assessment implementation as it now exists and to develop new and potentially valuable concepts and proposals for future research. In order to initiate discussion among academic, industrial, and governmental personnel about the technology implementation process, a professional seminar series of eight seminars gathered individuals from a wide range of disciplinary and institutional backgrounds to explore various aspects of the subject.

*Principal Investigators*  
Ellis Mottur  
Raphael Kasper

*Research and Support Staff*  
Betsy Amin-Arsala  
Susan Doscher  
Carolyn Essig  
Ann Finkelstein  
John M. Logsdon  
Pamela R. Lucas  
Mary Ann Talliaferro  
Margo von Kaenel

*Student Researcher*  
Marianne Bolgar



	<b>Title/Sponsor</b>	<b>Staff</b>
16. 1970 October (4 months) Jan. 1971	<b>Oil Spill Pollution Study: Liability and Financial Responsibility Aspects of Harm to the Social Environment (DOT)</b> The purpose of the study, to be made in accordance with section 11 (p) (4) of the Water Quality Improvement Act of 1970, was to determine the need for measures to provide for financial responsibility and limitation of liability, other than those measures contained in 11 (f) (1), (2), and (3), and of 11 (p) (1) of the Act, to pay for the costs of removing discharged oil and paying all damages resulting from the discharge of oil into the navigable waters of the United States or the contiguous zone, by vessels, offshore facilities and onshore facilities.	<b>Principal Investigator</b> Erling Rosholt  <b>Research and Support Staff</b> David Allgood Anna Brundage Audrey Hassanein Jacquelyn Howard Irene Martinez Susan Myers Alice Nance LeAnn Painter Carla Patterson Helen Thomas  <b>Student Researchers</b> Steven M. Anastasion Robert Brady Bennett Brown Dora deGreiff Michael Dworkin Susan Papadopoulos Alexander Pires, Jr. David Sayre Richard M. Tetteilbaum Donald J. Tobias Hartojo Wignjowijoto  <b>Consultants</b> George Brankey Clarence Danhof Peter Frucht Howard Reese Stanley Young
17. 1970 November (14 months) Dec. 1971	<b>Communications Technology and the Developing Nations (U.S. AID/AED)</b> Strategies were developed for utilizing communications media to bring family planning, basic education, and nutrition education programs to the rural and urban poor. General principles and programs were developed in the fields of family planning, nutrition, and basic education and were then applied more specifically to Colombia, the Republic of Zaire, and Indonesia. Thus application across a broad spectrum of nations can be achieved. The product includes consultation strategies designed for the process of cooperative work between nations, as well as programs, training and evaluation strategies.	<b>Principal Investigator</b> Joseph Margolin  <b>Research and Support Staff</b> Lesley Alter Kathryn Hensley Marion Misch Joset N. Munro  <b>Student Researchers</b> Karen Bell Sheri Wolff  <b>Consultants</b> Marnan Abdurrahman George Aoloyanis Robert R. Blake Lilly de Buchelli C. Ray Carpenter Bert Cowlan Henry P. David Joseph Fisher Alvaro Garcia-Pena Derrick Jelliffe Kendall W. King Kela Ladenheim Leonard Libresco Lee Love Laifullah Mahjudin Djoni Marsinih E. Lakin Phillips Roger Revette Roberto Rueda-Williamson Charles T. Stewart, Jr. Max H. Waney Hartojo Wignjowijoto Elisabeth Wilson Wimar Witoelar

18. 1971 April (6 months) Sep. 1971	<p><b>Title/Sponsor</b></p> <p><b>Technology Assessment Applied to Urban Solid Waste Disposal (NSF)</b></p> <p>This study applies the methods of technology assessment to solid waste management in the Baltimore city area. In this case, technology assessment considers the technological, economic, political and social factors that are related to the problem of solid waste management. These factors are assessed in a comprehensive and integrated manner so that optimal solutions to this problem can be proposed.</p>	<p><b>Staff</b></p> <p><i>Principal Investigators</i> Louis H. Mayo Betsy Amin-Arsala Henry E. Brady</p> <p><i>Research and Support Staff</i> Margo von Kaenel</p> <p><i>Student Researchers</i> William Fisher Audrey Hassanein Jacquelyn Howard Corazon Siddayao</p>
19. 1971 June (3 months) Sep. 1971	<p><b>Facilities and Support Services for 1971 Summer Employment Program: A Seminar-Lecture Series (EPA)</b></p> <p>A new course on the Environmental Crisis in the Washington metropolitan area investigating selected problems in air and water pollution, waste disposal and land use. It included a series of presentations by representatives of regulatory agencies of the various political jurisdictions in the metropolitan area. Leaders of local ecological organizations participated in planning the workshop course.</p>	<p><i>Principal Investigator</i> John M. Logsdon</p> <p><i>Research and Support Staff</i> Henry Brady Benita Fineman</p>
20. 1971 June (6 months) Dec. 1971	<p><b>Laws and Regulatory Schemes for Noise Abatement (EPA/ONA)</b></p> <p>To undertake a survey of existing Federal, State, and local laws, ordinances, and regulations governing the abatement and control of environmental noise, and to assess the effectiveness of the administration and enforcement of such provisions. The completed report provides data and analysis on governmental noise regulation for the report to be made by the Administrator of the Environmental Protection Agency to the President and the Congress pursuant to Section 402(b) of the Noise Pollution and Abatement Act of 1970.</p>	<p><i>Principal Investigator</i> Louis H. Mayo</p> <p><i>Research and Support Staff</i> Judith Bowen Vary T. Coates Margo von Kaenel</p> <p><i>Student Researchers</i> Marianne Bolgar Steffen Grae Audrey Hassanein William Neel Christina Olson Edward Shay Corazon Siddayao Stephen Somerstien Robert Ware John Zimmerman</p>
21. 1971 June (6 months) Nov. 1971	<p><b>Regional Seminars on Education Problems (HEW/OE)</b></p> <p>To assist in the implementation of a series of four regional seminars composed of practitioners in educational research and development with the Commissioner's Planning Unit for the National Institute of Education (NIE). The regional seminars are intended to provide a critical review of NIE planning to date so that any elements which are not well understood can be clarified; and to involve practitioners in development of plans, thus promoting both creative contribution and final acceptance.</p>	<p><i>Principal Investigator</i> Joseph B. Margolin</p> <p><i>Research and Support Staff</i> Marion R. Misch Joset Munro</p>

# COMPLETED AND ONGOING STUDIES

		<b>Title/Sponsor</b>	<b>Staff</b>
1971	22. June (14 months) Aug. 1971	<b>The Space Program During the 1970's: An Analysis of Policy Making (NASA)</b> To complete an on-going study requested by NASA. The two major portions of the study are: <ul style="list-style-type: none"> <li>• A narrative section, based on interviews with participants in the policy-making process and documents from NASA and other files, containing a detailed reconstruction of the process under examination; and</li> <li>• An analytic section discussing the forces influencing the outcome of the policy-making process and evaluating the NASA planning and policy analysis activities of the period in terms of those forces and that outcome.</li> </ul>	<b>Principal Investigator</b> John M. Logsdon  <b>Student Researcher</b> Jennifer Bond
1971	23. June (16 months) Sep. 1972	<b>Development of International Educational Communications and Technology (State Dept)</b> The conceptualization and study of the nature and alternative characteristics of an organization which would facilitate development of international educational communications and technology. A charter and a provisional board of directors will be developed, as well as the schema for EdComTech's relationship with existing institutions. Methods for funding will also be postulated and proposed.	<b>Principal Investigator</b> Joseph B. Margolin  <b>Research and Support Staff</b> Karen Bell Marion Misch
1971	24. June (23 months) Mar. 1974	<b>Evaluation Case Studies (Russell Sage Foundation)</b> To bring together ten to twelve evaluations, and to prepare each with some background on the reason the evaluation was undertaken by the sponsoring agency, some facts about the procurement as perceived by the sponsoring agency and as seen by the contractor, and some discussion of difficulties encountered in doing the study both in regard to relations with the sponsoring agency and with the field activity or activities being analyzed. Following this discussion will be an abstract of the study including methodology and results. A final section will cover the reception of the evaluation by the sponsor and the impact on policy inasmuch as the latter can be determined.	<b>Principal Investigator</b> James Abert  <b>Student Researchers</b> Carol Reitz Joan Szabo Stephen Szabo
1971	25. July (3 months) Sep. 1971	<b>Highway Interchange Effects on Churches (DOT/Federal Highway Administration)</b> This project researched the effects of 'close-by' highways on several churches in the Washington, D.C. area. The general relationship between churches and highway interchanges had already been considered in a pilot study ("Highway Interchange Locations for Churches—A Pilot Study on Washington, D.C."). Our project relied on that survey to provide a context in which these case studies became more meaningful. The trend of the findings of this study confirmed the pilot study's finding that areal orientations (membership and concern) of the churches are strongly related to unfavorable and favorable evaluations of the effects of closeby limited-access highways.	<b>Principal Investigator</b> Joel Garner  <b>Research and Support Staff</b> Margo von Kaenel  <b>Consultant</b> Joseph L. Tropea

26. 1971 July (30 months) Dec. 1973	<p><b>Title/Sponsor</b></p> <p><b>Assessment of ESEA Title III Projects (HEW/OE)</b></p> <p>Although \$700 million was spent on the Title III program of the Elementary and Secondary Education Act (ESEA) between 1965 and 1971, no concentrated effort had been made on the national level to determine what was working. The National Advisory Council on Supplementary Centers and Services, in cooperation with the 54 state and territorial advisory councils, proposed this study to identify successful Title III educational programs supported with Title III funds. The study identifies ten to twenty programs which have been recommended by their state educational agencies, field-assessed, and subjected to rigorous evaluation. In addition to a monthly newsletter designed to inform the Title III community of national developments affecting education and of the activities of Title III projects and state administrators (distribution 3000 copies), the Council prepares and publishes a <i>Quarterly</i> magazine, each reviewing and listing Title III projects in a specific curriculum area. Beginning with a Spring, 1972 issue, these have been:</p> <p>"Title III in Environmental Education"</p> <p>"Title III in Preschool Education"—Summer 1972</p> <p>"Title III and the World of Work"—Fall 1972</p> <p>"Title III in Guidance and Counseling"—Winter 1972</p> <p>"Title III and Changing Educational Designs"—Spring 1973</p> <p>"Title III and Cultural Diversity"—Summer 1973 (reviewing projects in bilingual education and ethnic studies.)</p> <p>The Fall 1973 <i>Quarterly</i> is devoted to Title III projects in educational administration and management. The Winter 1973 issue is on</p> <p>"Title III in the Arts."</p>	<p><b>Staff</b></p> <p><i>Principal Investigator</i>  Gerald J. Kluempke</p> <p><i>Research and Support Staff</i>  Dorsey Baynham  Jerome Brightman  Gail Gross  Linda McGonigal  Geraldine Matthews  Beverly Nateghi  Virginia Robinson  Saul Yanofsky</p> <p><i>Consultants</i>  Diane Davis  Jefferson Eastmond  William Furry  Rev. Charles Patrick Laferty</p>
27. 1971 July (30 months) Dec. 1973	<p><b>Title/Sponsor</b></p> <p><b>Effect of Changing Patterns and Levels of Federal Research and Development Funding on Research and Development Funding by Industry (NSF)</b></p> <p>The relationship between changes in private and government R&amp;D funding in industry can be expressed by a multiplier. This study collected data and estimate multipliers for different types of industries, laboratories, business firms and technologies. Because of different multipliers, changes in the level of federal funding in any one category, or shifts in spending from one category to another affect differentially the national total of R&amp;D funding. Multiplier analysis can be used to refine analysis of demand for scientific manpower resources, or to show the effects of proposed shifts in the allocation of federal R&amp;D funds. Estimated values of multipliers were obtained through econometric analysis of data collected during a three phased field survey conducted during July-August 1971, January 1972, and July-August 1972.</p>	<p><i>Principal Investigator</i>  Guy Black</p> <p><i>Research and Support Staff</i>  Judith Z. Bowen  Arnaldo Castro  Gertrude Delman  Dorothy Donahue</p> <p><i>Student Researcher</i>  William Fischer</p>

# COMPLETED AND ONGOING STUDIES

	<b>Title/Sponsor</b>	<b>Staff</b>
28. 1971 August (18 months) Feb. 1973	<b>Technology and Public Policy: The Process of Technology Assessment in the Federal Government (NASA/NSF)</b> A survey of all federal agencies and their major components, followed by indepth interviews with approximately 70 officials, to identify loci within federal agencies where technology assessments are performed, and to evaluate the process as a technique for directing and controlling technological development. The study provides a base of information for improvement of the process and for development of new technology assessment mechanisms where the study indicates that they are needed.	<b>Principal Investigator</b> Vary T. Coates
29. 1971 August (21 months) Mar. 1973	<b>Plan for Local Cooperation and Participation in Measurement of Environmental Noise</b> (Boft-Baranek & Newman) To develop a program for the measurement of environmental noise in the community and its associated human response.	<b>Principal Investigator</b> Vary T. Coates  <b>Support Staff</b> Ophelia Peters Helen Sadtler  <b>Student Researchers</b> Martin Echter Jack Zakim
30. 1971 December (19 months) June 1973	<b>Implications of Soviet Marine Expansion</b> (DOT/ONR) To collect all relevant data concerning all facets of the increasing strength of Soviet marine expansions: naval vessels, oceanographic research vessels, merchant marine and fishing fleet. All available sources, including Russian materials, were utilized. Following a normative approach, an analysis was made in order to identify and discuss the implications of Soviet marine expansion.	<b>Principal Investigator</b> John Hanessian  <b>Research and Support Staff</b> Ruth Ann Day Laurie Tongren  <b>Student Researchers</b> Susan Coady Audrey Hassanein Michael Kalman  <b>Consultants</b> Howard C. Reese William J. Spahr Ronald Waldheger
31. 1971 December (36 months) Dec. 1974	<b>The Interrelationship of Urban Governmental Functions to Those at the State, Regional, and Federal Level (Urban Studies, Inc.)</b> To support a series of 'professional seminars' involving university, government, industry and R&D firm representatives to devote their attention to matters such as: (1) The need for and the character of the analytical capability required for a 'quick response' mechanism to serve urban governmental needs; (2) Opportunities for the decentralization of public services and governmental functions through the use of developing telecommunications technology: CATV, Closed-circuit TV, etc.; (3) Application of new technologies which might enable local governments to more effectively and economically comply with recent court decisions requiring 'equality of public services' to all residents within the municipality; and (4) Most effective allocation of activities (and responsibilities) among the Federal-local levels of government, including activities and operations requiring cooperative, integrated efforts.	<b>Principal Investigators</b> Louis H. Mayo Vary T. Coates  <b>Consultant</b> Betsy Amin-Arsala

	<b>Title/Sponsor</b>	<b>Staff</b>
32. 1972 February (23 months) Dec. 1973	<b>Effectiveness of Illustrated Print Media (Non-Verbal) on Family Planning Attitudes Among Colombians (State Dept/AID)</b> <p>An evaluation study to assess the effects of two illustrated, largely nonverbal, booklets designed to improve attitudes toward the acceptance of family planning among illiterate and semi-literate populations in Colombia.</p> <p>In addition to the effects of the booklets on target audience knowledge and attitudes towards family planning, further results assessed are:</p> <ul style="list-style-type: none"> <li>• The impact of the delivery systems for booklet on target audience family planning attitudes;</li> <li>• The effects of the booklets and their delivery on the family planning agencies involved;</li> <li>• The process by which booklets spread through communities after delivery to initial target audience members, and the pattern of this informal dissemination.</li> <li>• Recommendations for new policy dealing with the dissemination and utilization of materials.</li> </ul>	<p><i>Principal Investigator</i> Joseph D. Margolin</p> <p><i>Research and Support Staff</i> Karen Bell Margery Kemper Marion R. Misch Judith Naiman Barbara Schickman Martha B. Traini Sheri Wolff</p>
33. 1972 February (24 months) Jan. 1974	<b>Normative Systems Analysis (HEW/NIMH Fellowship)</b> <p>An assessment of the potential of normative analysis with regard to rationale and technical conduct of a more comprehensive approach to urban studies.</p>	<p><i>Principal Investigator</i> Milton Marney</p>
34. 1972 March (27 months) May 1974	<b>Citizen Group Uses of Scientific and Technological Information in Nuclear Power Cases (NSF)</b> <p>An analysis of the mechanisms by which citizen groups obtain and utilize scientific and technological information in making cases involving technological projects with environmental implications.</p>	<p><i>Principal Investigator</i> Steven Ebbin</p> <p><i>Research and Support Staff</i> Audrey Hassanein Margo von Kaenel Raphael Kasper</p> <p><i>Student Researcher</i> John Zimmerman</p>
35. 1972 May (21 months) Jan. 1974	<b>Evaluation of Guidelines and Noise Related Environmental Impact Statements (EPA)</b> <p>To examine a representative sample of environmental impact statements to determine the extent to which noise has been treated as a potential environmental effect, and the extent to which such treatment has been adequate to assure protection of communities and citizens.</p>	<p><i>Principal Investigator</i> Louis H. Mayo</p> <p><i>Research and Support Staff</i> Betsy Amin-Arsala Vary T. Coates Gertrude Delman Mary Ducey Audrey Hassanein Helen Sadtler</p> <p><i>Student Researchers</i> Barry Israel Richard Rice Edward Studholme Robert Ware Jack Zakim</p>
36. 1972 June (14 months) Aug. 1973	<b>Issues and Concerns in Career Education</b> <p>A special pilot program of seven seminars to expose the interns to the views of a variety of executives from both the public and private sectors about the needs and adequacy of educational systems in preparing the nation's youth for lifetime careers. The study analyzed the successes and failures of traditional educational systems and special nonpublic school manpower training programs in preparing people for employment, and evaluated the impact of such programs in career selection.</p>	<p><i>Principal Investigator</i> Steven Ebbin</p> <p><i>Research and Support Staff</i> Kathy Crockett Ann B. Finkelstein Raphael Kasper Kristin Larson Elizabeth Ravnholt Margo von Kaenel</p> <p><i>Career Education Fellows</i> Rudolph Bryant Harold R. Hicks Albert Lorente</p>

# COMPLETED AND ONGOING STUDIES

	<b>Title/Sponsor</b>	<b>Staff</b>
37. 1972 June (42 months) Nov. 1975	<b>Graduate Program in Science, Technology, and Public Policy (NSF)</b> Support for a program of research and instruction in science, technology and public policy at GWU. This program will be built upon the existing research efforts of the PPSST and the master's degree program in science, technology and public policy of the School of Public and International Affairs. Program activities would be focused on a broad central theme: "Alternative Strategies for U.S. Science and Technology Policy." There would be four elements in the proposed program: (1) a research project, "Changing National Priorities and Public Policy for Science and Technology: An Examination of Decision-Making Institutions and Processes;" (2) a professional colloquia series initially focused on "U.S. National Goals and Technological Strategy;" (3) a continuing faculty seminar on science, technology, and public policy; and (4) development of new curricular offerings in relevant topics.	<b>Principal Investigator</b> John M. Logsdon  <b>Research and Support Staff</b> Mark S. Frankel Audrey Hassanein Marcia Smith Shelly Wax Linda Yelton  <b>Student Researchers</b> Michael Bass Jennifer Bond Rosemary Chalk Deborah Cobin Robert Ehrhardt Benita Fineman Joanne Gorman J. Michael Hobert Rodney Huff Mary Mogee Marc Schieber David Wald  <b>Lecturers</b> Michael Boretsky Edward David George Eads Philip Handler J. Herbert Hollomon Roger Levien John Mock
38. 1972 July (12 months) June 1973	<b>Personnel Mobility Assignment (NSF/OIP)</b> To assist the NSF Office of International Programs in seeking to develop closer coordination between OIP and the Foundation's research directorates, and to introduce into OIP new ideas, approaches, and management techniques from the university sector.	<b>Principal Investigator</b> Deborah Cobin
39. 1972 July (24 months) June 1974	<b>Personnel Mobility Assignment (NSF/RANN)</b> As a program manager within the Office of Exploratory Research and Problem Assessment, to focus particular attention on the interrelationships between national needs and international consequences with regard to research and development. Within the established program plan of ERPA, to concentrate on innovation in the private sector, competitiveness in the international market, education for a continually changing society, and long-range planning in the public and private sector.	<b>Principal Investigator</b> John Hanessian
40. 1972 July (14 months) Aug. 1973	<b>Analytical Services Relating Communications Technology to Development (State Dept/AID)</b> To develop alternative strategies for the use of communication media to improve the quality of life in selected less developed countries (LDC). These strategies led to country-specific project plans worked out in collaboration with the USAID Mission and LDC personnel. The Educational Policy Group developed alternative strategies for utilizing communication media (TV, radio, etc.) for the improvement of nonformal education. The program was devoted generally to rural populations. This study is a follow-on to one done in 1971 on Communications Technology and the Developing Nations.	<b>Principal Investigator</b> Joseph B. Margolin  <b>Research and Support Staff</b> Karen Bell Gail A. Keiser Marion R. Misch Judith Naiman Barbara Shickman Martha Traini Sherri Wolff  <b>Consultants</b> Evelyn Anisfeld Jack Barkenbus Philip H. Coombs Alvaro Garcia-Pena Katanga Heitman Marilyn Lichtman

41. 1972 December (8 months) July 1973	<p><b>Title/Sponsor</b></p> <p><b>Candidates and Priorities for Technology Assessments: A Survey of Federal Executive Agency Professionals (NSF/RANN)</b></p> <p>To perform a "quick-response" survey of Federal Executive Agencies for the purpose of generating a comprehensive list of current and potential technological inventions, innovations, and applications for which technology assessment is needed; and to categorize such developments and innovations in terms of a number of relevant criteria (such as imminency, potential significance of impact, policy relevance, and the estimated level of effort needed) in order to assist in the selection, scheduling, and design of appropriate assessment efforts in the near future and others to be developed over time.</p>	<p><b>Staff</b></p> <p><i>Principal Investigator</i> Howard C. Reese</p> <p><i>Research and Support Staff</i> Kathleen Cappuccio</p> <p><i>Student Researchers</i> Peter Bankson George Humphries Ben Sands Jeff Shaw</p>
42. 1972 December (9 months) Aug. 1973	<p><b>Interpretation of Energy Demand Scenarios into Life-Style Scenarios (Ford Foundation Energy Policy Project)</b></p> <p>To formulate alternative life-style scenarios for the future, to relate these to energy consumption, and to derive from them corresponding alternative energy demand scenarios.</p> <p>The alternative future energy demand scenarios can then be compared to the alternative future energy supply scenarios to be developed by RFF. The future life-style scenarios are intended to provide graphic and plausible interpretations of the implications of national energy policy options in a form which is meaningful and useful for the public and for public decision-makers.</p>	<p><i>Principal Investigator</i> Vary T. Coates</p> <p><i>Research and Support Staff</i> Dorothy Dier Roy L. Marx</p> <p><i>Student Researcher</i> Joseph Matthews</p>
43. 1973 January (18 months) June 1974	<p><b>Innovation Information and Analysis Project (NSF/RDA)</b></p> <p>To build a coherent system for collecting, analyzing, and disseminating information on innovation, including looking into such Government policy areas as tax incentives, subsidies, trade, pertinent laws, patents, and regulation as well as social and economic implications of innovation and the nature of the innovation process. The aim is to search and synthesize information from present sources by utilizing their services and complementing their efforts.</p> <div> <div> <p><i>Abstractors</i></p> <p>Julian Gammon James King James Maloney Malcolm McConnell Frank Miles Jeanne Moody Barbara Porter Phyllis Price Jean Puppa Nancy Schandelmeier Cynthia Shockley Katherine Shouldice Rochelle Siegal Gregory Tassey Ron Tipton Carla Vallenta Robert Ware</p> </div> <div> <p><i>Consultants</i></p> <p>Todd A. Anuskiewicz John Bosley William Breswick Elizabeth Feinler Edwin Hullander George Kilpatrick John Logsdon Charlton Price Albert Shapiro Charles T. Stewart, Jr. Philip Wright</p> </div> </div>	<p><i>Principal Investigators</i> Louis H. Mayo Wesley L. Tennant</p> <p><i>Research and Support Staff</i> Dennis Brezina William Fischer Jennette Fuschini Charles Hansen Audrey Hassanein Claudia Howard Judith Russell Fred Schroeder Michele Sendow Ann Vlachos Margaret Ware Elten Wolff</p> <p><i>Student Researchers</i> Merry Aronoff Raj Bahadur Pamela Brown Mary Burns Robin Fox Robert Gorman Lee Jackson Maarten Kooij Lisa Kuhn Mary Lee Patricia Marx Robert Mayo Sarah Mondale Liza Nacrelli Benjamin Nyanor Deborah Saulsbury Mark Schwartz Peter Zirnite</p>



	<b>Title/Sponsor</b>	<b>Staff</b>
44. 1973 April (6 months) Sep. 1973	<b>An Integrated Strategy for Aircraft/Airport Noise Abatement (EPA/ONA)</b> This study project will provide the legal-institutional analysis required for the implementation of EPA's responsibilities pursuant to § 7 of the <i>Noise Control Act of 1972</i> (Aircraft Noise Standards). The approach will be to identify the "noise control" choices available at critical decision points in the developmental process of airport-aircraft planning, implementation and operations. The study will also examine the aircraft noise prevention or abatement strategies available at each such decision point, the availability or unavailability of legal-institutional instruments to implement such strategies, the extent to which existing authority has been effectively applied to noise abatement programs, the more serious deficiencies in existing authority (or other constraints) which have precluded effective noise abatement at the Federal, State and local levels, and recommendations for the modification or enlargement of existing authority so as to abate aircraft noise intrusions to a level consistent with the "public health and welfare."	<i>Principal Investigator</i> Louis H. Mayo  <i>Research and Support Staff</i> Betsy Amin-Arsala James M. Brown Gertrude Delman Dorn McGrath Carol Nelson Edward Robbins Edward Studholme Ernest Weiss  <i>Student Researchers</i> Paul Aiken Edward F. Aliebes James Bruce Paul Gaskin Joan Gelber Daniel Guttman Swadesh Kalsi Alan Kassirer Jay Kivits Athanasios Paroutsas Richard E. Price Jared Scharf Onkar Sharma Michael Vollmer Margaret Weekes Alan Wiener Blaine Yamagata  <i>Consultants</i> Allison Dunham Alvin Greenwald Jan Krasnowiecki Stephen I. Lingenfelder James B. Minor Sheldon Plager Robert D. Rudich Raymond A. Shepanek David Standley Joseph Vittek, Jr. Nicholas C. Yost
45. 1973 April (24 months) Mar. 1975	<b>Revitalization of Small Communities Through Transportation (DOT/OS)</b> The research is based on a two-part hypothesis: that small towns in America represent a valuable resource in solving some of our pressing urban problems, and that new transportation policies and technologies will enable the exploitation of this resource. The purpose of this research is to explore the broad factors which have led to the decline of small towns and how the trends of decline may be reversed through transportation related actions. The study will be broad in scope, focusing upon social, political, and economic aspects of the problem, as well as the purely technological. All transportation modes will be treated with special attention given to new technologies such as TACV and VTOL. Methodology employed will include, as necessary, the range of engineering and economic analysis, as well as legal, institutional, and social impact analyses. The results of this research will be a better understanding of the role of the small town in America and in turn, of the role of transportation in small town utilization. Policies for application of transportation technology to small towns will be recommended.	<i>Principal Investigator</i> Vary T. Coates  <i>Research and Support Staff</i> Joseph Margolin Roy L. Marx Charles Stewart Edward Studholme Ernest Weiss  <i>Student Researchers</i> Rodney Frame Mona Jaffe Shelley Mastran Judy Naimon Wendy Schacht  <i>Consultant</i> Robert Anthony

46.  
1973 October  
(4 months)  
Jan. 1974

**Title/Sponsor**

**Urban Transportation Research and Training  
Project (DOT/UMTA)**

To develop recommendations for the Urban Mass Transportation Authority (UMTA) for possible revisions to the UMTA University Program. Broadly this would include detailed study, design, and development work to determine how research and training centers based at institutions of higher learning could best be organized, what they could do, and how their activities could be interfaced with urban transportation policy and program requirements.

**Staff**

*Principal Investigator*  
Wesley L. Tennant

*Research and Support Staff*  
Vary T. Coates  
Dana Friedman  
Edward Studholme  
Theodore Suranyi-Unger

*Student Researcher*  
Rodney Frame

*Consultants*  
Darcia Bracken  
Charlton R. Price

# Seminar Series and Participants 1966-1973

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1. Seminar Series on  
**THE IMPACT OF TECHNOLOGY ON HUMAN VALUES**

Chairman: Harold P. Green

Papers were presented as follows:

**1. *The Supersonic Transport and the Sonic Boom***

April 3, 1967—Herbert Tenzer (D.-NY)  
Member of Congress

**2. *Medical Experimentation on Human Beings***

May 8, 1967—Professor David J. Sharpe  
George Washington University  
and A. E. Parrish, M.D.  
George Washington University

**3. *Weather Modification—a) Legal and Social Aspects***

June 5, 1967 Jack C. Oppenheimer, Assistant Counsel  
National Science Foundation

***b) Scientific Prospects***

Peter Wyckoff  
National Science Foundation

**4. *Computer Technology and Social Imagination***

October 2, 1967—Robert L. Chartrand  
Science Policy Research Division  
Legislative Reference Service  
Library of Congress

**5. *Public Understanding of Radiation Protection***

December 4, 1967—Lauriston S. Taylor, President  
National Council on Radiation Protection and Measurements

***Participants:***

**Frank B. Allan**

Professor of Anatomy;  
Coordinator of Teaching Aids  
GWU Medical School

**Murray D. Ashton**

United Kingdom Scientific Mission  
The Embassy of Great Britain

**Werner Baum**

Deputy Administrator  
Environmental Science Services Administration

**Irwin H. Billick**

Legislative Reference Service  
Library of Congress

**Guy Black**

Senior Staff Scientist  
GWU Program of Policy Studies

**W. H. Boone**

Committee on Science and Astronautics  
U.S. House of Representatives

**William D. Carey**

Assistant Director  
Bureau of the Budget

**William G. Colman**

Executive Director  
Advisory Commission on Intergovernmental Relations

**Joseph Cooper**

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School of Government, Howard University

**Francis P. Cotter**

Vice President  
Westinghouse Electric Corporation

**Clarence H. Danhof**

Senior Staff Scientist  
GWU Program of Policy Studies

**Leo Goodman**

Industrial Union Department, AFL-CIO;  
Secretary, Atomic Energy Technical Committee

**Irving Gray**

Professor of Biology, Georgetown University;  
Director, Washington Colloquium on Science and Society

**Harold P. Green**

GWU Professor of Law

**Norman Kaplan**

Senior Staff Scientist  
GWU Program of Policy Studies

**James E. Mahoney**

Senior Staff Scientist  
GWU Program of Policy Studies

**Joseph B. Margolin**

Senior Staff Scientist  
GWU Program of Policy Studies

**Louis H. Mayo**

Vice President for Advanced Policy Studies;  
Director, GWU Program of Policy Studies

**Michael Michaelis**

Manager, D.C. Branch  
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**Clarence Mondale**

GWU Professor of American Civilization

**Ellis Mottur**

Senior Staff Scientist  
GWU Program of Policy Studies

**Robert P. Multhauf**

Director, Museum of History and Technology  
The Smithsonian Institution

**Brice O'Brien**

National Coal Association

**Harold Orlans**

Senior Staff Member  
The Brookings Institution

**Walter A. RADIUS**

Office of Assistant Administrator for DOD and  
Interagency Affairs  
NASA

**Leo Schubert**

Professor of Chemistry  
American University

**Chalmers Sherwin**

Office of Science and Technology  
Executive Office of the President

**Stephen Strickland**

Associate Director  
President's Commission on White House Fellows

**William J. Trainor**

Special Assistant to the Director  
Office of External Research  
Department of State

**F. Joachim Weyl**

Special Assistant to the President  
National Academy of Sciences

2. Seminar on  
**SOCIAL CHANGE IN THE AMERICAN VALUE SYSTEM**

Moderator: Clarence Mondale  
Professor of American Civilization  
George Washington University

***Change, Social Problems, and Political Tensions***

November 18, 1967—Seymour M. Lipset  
Professor of Government and Social Relations  
Center for International Affairs  
Harvard University

*Critique and Commentary* by John P. Roche  
Special Assistant to President Johnson  
The White House

***Participants:***

David Z. Beckler  
Office of Science and Technology  
Executive Office of the President

Guy Black  
GWU Program of Policy Studies

Robert G. Brown  
GWU Professor of Sociology

William Carey  
Bureau of the Budget

Clarence Danhof  
GWU Program of Policy Studies

Henry David  
Division of Behavioral Sciences  
National Academy of Sciences

Lloyd H. Elliott  
President, GWU

Nathan Glick  
United States Information Agency

Irwin P. Halpern  
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John Hanessian  
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Barbara H. Kaplan  
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Robert H. Land  
General Reference and Bibliography Division  
Library of Congress

Hugh LeBlanc  
GWU Professor of Political Science

Joseph B. Margolin  
GWU Program of Policy Studies

Louis H. Mayo  
GWU Vice President for Advanced Policy Studies;  
Director, Program of Policy Studies

Ellis Mottur  
GWU Program of Policy Studies

Mancur Olson  
Deputy Assistant Secretary for Social Indicators  
Department of Health, Education, and Welfare

Harold Orlans  
The Brookings Institution

Harvey S. Perloff  
Regional and Urban Studies  
Resources for the Future

Henry W. Riecken  
Social Science Research Council

R. H. Schlagel  
GWU Professor of Philosophy

Duane Scribner  
Administrative Assistant to Senator Walter Mondale

Willis H. Shapley  
Associate Deputy Administrator, NASA

Robert G. Smith  
GWU Program of Policy Studies

Wilcomb E. Washburn  
Department of American Studies  
The Smithsonian Institution

Charles R. Wright  
Department of Sociology and Social Psychology  
National Science Foundation

Michael Young  
Social Science Research Council of Great Britain

3. Seminar Series on  
**SYSTEMS AND CYBERNETICS CONCEPTS IN UNIVERSITY CURRICULA**

Chairman: Richard F. Ericson  
Professor of Business Administration  
George Washington University

**1. Systems Concepts and Interdisciplinary Curricula**

February 28, 1968—Karl Deutsch  
Professor of Government, Harvard University

**2. Systems Concepts and Management Curricula**

March 22, 1968—George Kozmetsky  
Dean, School of Business Administration  
University of Texas

**3. General Systems Research and Interdisciplinary Studies**

April 28, 1968—Kenneth Boulding  
Director, Institute of Behavioral Sciences  
University of Colorado

**4. Interdisciplinary Synthesis: The Academic Role in Institutional Adaptation**

December 19, 1968—Milton Marney  
Advanced Research Department  
Research Analysis Corporation

**5. Interdisciplinary Research and Study Groups: The RAND Experience**

February 14, 1969—Roger Levien  
Social Sciences Division, The RAND Corporation

**6. Utilization of Interdisciplinary Systems and Cybernetics: A USSR/US Comparison**

April 11, 1969—Professor John Ford  
Scientific Intelligence Specialist  
The American University

**7. Problems in Developing Effective Interdisciplinary Teams in the Contemporary University**

May 9, 1969—John H. Milsum  
Social Sciences Division, The RAND Corporation

**8. The University's Role in Implementing Social Cybernetics**

May 22, 1969—*Panel Discussion*  
Milton Marney (see 4. above);  
John Ford (see 6. above);  
Charles Williams  
Office of Planning and Policy Studies  
National Science Foundation

***The following GWU Faculty or Staff members  
participated in one or all of the seminars:***

David Abell  
Commission on Undergraduate Education in the  
Biological Sciences

George R. Allen  
Department of Business Administration

Richard C. Allen  
Law, Psychiatry and Criminology

Don Allensworth  
Department of Political Science

Robert E. Baker  
School of Education

Stanley Baker  
Department of Biology

**Arthur S. Banks**  
 Department of Political Science  
**Ruth Bari**  
 Department of Mathematics  
**Richard A. Barrett**  
 Department of Business Administration  
**Guy Black**  
 Program of Policy Studies (Economics)  
**Charles Bradley**  
 Department of Economics  
**Harold F. Bright**  
 Vice President for Academic Affairs  
**Ira H. Cisin**  
 Director, Social Research Group  
**Raymond Cloutier**  
 Department of Public Administration  
**Victor H. Cohn**  
 Department of Pharmacology  
**Roy M. Coleman**  
 Department of Psychiatry  
**George F. Conner**  
 Department of Business Administration  
**Paul A. Crafton**  
 Department of Engineering Administration  
**John T. Dailey**  
 Education Research Project  
**Clarence H. Danhof**  
 Program of Policy Studies (Economics)  
**Harold C. DeMoody**  
 School of Engineering  
**James C. Dockera**  
 Dean, School of Government and Business Administration  
**Donald S. Douglas**  
 Department of Biology  
**Marvin Eisenberg**  
 School of Engineering and Applied Science  
**Richard F. Fowler**  
 Rehabilitation Center  
**Frederick H. Gibbs**  
 Health Care Administration  
**Samuel Gibson**  
 Public Health Service  
**Leon Gintzig**  
 Health Care Administration  
**John R. Glennie**  
 Department of Business Administration  
**Harold P. Green**  
 Law, Science and Technology  
**William Griffith**  
 Department of Philosophy  
**Phillip Grub**  
 Department of Business Administration  
**Andrew Gyorgy**  
 Institute for Sino-Soviet Studies  
**Ira B. Hansen**  
 Department of Biology  
**Dagmar Henney**  
 Department of Mathematics  
**Clifford Ireland**  
 Department of Statistics  
**Joe L. Jessup**  
 Department of Business Administration  
**Robert S. Jordan**  
 Department of Political Science  
**Norman Kaplan**  
 Program of Policy Studies (Sociology)  
**L. William Katz**  
 Health Care Administration  
**Irving Kayton**  
 Computer-in-Law Institute  
**Stephen G. Kent**  
 Department of Pathology  
**Arthur D. Kirsch**  
 Department of Statistics  
**Jack L. Knetsch**  
 Natural Resources Policy Center  
**Felix Kopstein**  
 HumRRO  
**Robert Kramer**  
 National Law Center  
 Dean of the Law School  
**Sar A. Levitan**  
 Department of Economics  
**Kurt London**  
 Institute for Sino-Soviet Studies  
**John D. Lyons**  
 HumRRO  
**Eugene R. Magruder**  
 College of General Studies  
**James E. Mahoney**  
 Program of Policy Studies  
**Henry G. Manne**  
 National Law Center  
**William H. Marlow**  
 Navy Logistics Center  
**Martin A. Mason**  
 School of Engineering and Applied Science  
**Louis H. Mayo**  
 Vice President for Advanced Policy Studies;  
 Director, Program of Policy Studies  
**William A. McClelland**  
 HumRRO  
**Arnold C. Meltzer**  
 School of Engineering and Applied Science  
**Jean Montgomery**  
 Natural Resources Policy Center  
**James Mosel**  
 Department of Psychology  
**Ellis Mottur**  
 Program of Policy Studies  
**Ralph C. Nash**  
 National Law Center  
**Benjamin Nimer**  
 Department of Political Science  
**Henry R. Page**  
 Department of Business Administration  
**Ewing L. Phillips**  
 Department of Psychology;  
 Psychological Clinic  
**Charles E. Pinkus**  
 Department of Engineering Administration  
**Charles E. Rice**  
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John R. Rizzo  
Behavioral Science

Daniel D. Roman  
Department of Management

Blake S. Root  
School of Education

Addison M. Rothrock  
School of Engineering and Applied Science

Joan Rubin  
Department of Anthropology

Peter Sawitz  
Department of Electrical Engineering

Richard H. Schlagel  
Department of Philosophy

Robert J. Seidel  
HumRRO

Presson Shane  
Department of Engineering Administration

Charles W. Shilling  
Biological Sciences Communication Project

Daniel Sinick  
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Herbert E. Smith  
School of Engineering and Applied Science

Joseph B. Smith  
School of Engineering and Applied Science

Lowell C. Smith  
Department of Business and Public Administration

Robert G. Smith  
Program of Policy Studies

Henry Solomon  
Department of Economics

Carol R. St. Cyr  
School of Education

Edwin L. Stevens  
Department of Speech

Charles T. Stewart  
Department of Economics

Choy Tak Taam  
Department of Mathematics

Raymond E. Thomas  
Department of Statistics  
Computer Center

Charles S. Tidball  
Department of Physiology

Frank H. Trinkl  
State and Local Finances Project

Joseph L. Tropea  
Department of Sociology

Carl Walther  
Assistant Vice President of Academic Affairs

Regis Walther  
Social Research Group

Reuben E. Wood  
Department of Chemistry

4. Seminar Series on  
**FEDERAL CONTRIBUTIONS TO MANAGEMENT**

Series Director: David S. Brown  
GWU Professor of Public Administration

Papers were presented as follows:

**1. *Integration and Systematization of Planning, Programming, and Budgeting***

April 18, 1968—Harry R. Page  
Associate Professor of Business Administration, GWU

**2. *Evolution of the Management Audit as a Means of Appraisal***

April 25, 1968—Cecil E. Goode  
Professorial Lecturer in Public Administration, GWU

**3. *Involving Clients and the Public in Federal Administration***

May 2, 1968—Manes Specter  
Member, Administrator's Advisory Council  
Veterans Administration

**4. *Communications and Federal Management: Some Current Highlights***

May 8, 1968—Fred R. Brown  
Adjunct Professor of Public Administration  
American University

**5. *Federal Experience with Productivity Measurement***

May 16, 1968—John W. Kendrick  
Professor of Economics, GWU

**6. *Value Engineering: Its Development and Application***

May 22, 1968—George R. Allen  
Associate Professor of Business Administration, GWU

**7. *The Uses of Simulation in Management***

May 29, 1968—Stephen Chitwood  
Industrial College of the Armed Forces

**8. *Economics and Its Uses in Government***

June 6, 1968—Guy Black  
Associate Research Professor of Business Economics, GWU

**9. *Federal Contributions to Procurement Management***

June 13, 1968—Daniel D. Roman  
Professor of Management, GWU

**10. *Federal Contributions to the Improvement of Management in Private Enterprise***

November 25, 1968—Edwin Timbers  
Professor of Public Administration, and Director,  
Navy Graduate Financial Management Program, GWU

**11. *Federal Contributions to Operations Research***

December 5, 1968—John Coughlan  
Certified Public Accountant, Washington, D.C.

**12. *Federal Contributions to the Management of Records***

December 19, 1968—Chester Guthrie  
Acting Special Assistant for Research and Planning  
National Archives and Records Service

**13. Federal Development and Application of Electronic Computers**

January 9, 1969—Lowell H. Hattery  
 Professor of Management and Public Administration  
 The American University

**14. Federal Contributions to the Management of Data Processing Systems**

January 16, 1969—Marvin M. Wofsey  
 Associate Professor of Management, GWU

**Participants:**

**Herbert E. Angel**  
 Deputy Archivist of the United States  
 National Archives and Records Service

**Lloyd Bartholomew**  
 Associate Professor of Health Care Administration, GWU

**Don L. Bowen**  
 Executive Director  
 American Society for Public Administration

**Harold F. Bright**  
 Vice President for Academic Affairs, GWU

**Albert W. Brisbin**  
 Assistant Commissioner for Planning and Research  
 Internal Revenue Service

**Fred R. Brown**  
 Adjunct Professor of Public Administration  
 American University;  
 Professor of Management  
 Industrial College of the Armed Forces

**Richard G. Cheek**  
 Branch Manager  
 Manpower, Inc.  
 Washington, D.C.

**Carl W. Clewlow**  
 Deputy Assistant Secretary for Civilian Personnel Policy  
 Office of Assistant Secretary of Defense (Manpower)

**Daniel R. Cloutier**  
 Associate Professor of Public Administration, GWU

**Seymour I. Colman**  
 Manager of Planning, Programming and Budgeting Systems  
 Stanford Research Institute

**Robert B. Curry**  
 Vice President for Management Systems  
 Association of American Railroads

**Warren Dahlstrom**  
 Chief, Division of Organization and Management Studies  
 Office of Management Research  
 U.S. Department of the Interior

**Clarence H. Danhof**  
 Senior Staff Scientist  
 Program of Policy Studies, GWU;  
 Professor of Economics; and Lecturer  
 Johns Hopkins School of Advanced International Studies

**Ruth M. Davis**  
 Director  
 Lister Hill National Center for Bio-Medical Communications  
 National Library of Medicine

**Paul M. Dickie**  
 Assistant Professor of Business Administration, GWU

**Commander Michael M. Dietch, Jr.**  
 Assistant Comptroller  
 Financial Management Systems  
 Bureau of Medicine and Surgery  
 Department of the Navy

**J. C. Dockeray**  
 Dean, School of Government and Business  
 Administration, GWU

**Edmund D. Dwyer**  
 Director of Audits and Compliance  
 General Services Administration

**John P. Eberle**  
 Director, Office of Administration  
 Equal Employment Opportunity Commission

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 Consulting Economist  
 Checchi and Company, Washington, D.C.

**Harold B. Finger**  
 Associate Administrator for Organization and Management  
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**Harry H. Fite**  
 Chief, Data Systems Division  
 Office of Management Systems  
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**Charles Fotis**  
 Director of Employee Training and Career Development  
 Office of Assistant Secretary of Defense (Manpower)

**Thomas Francis**  
 Director, Office of Development Districts  
 Economic Development Administration  
 Department of Commerce

**Howard Gammon**  
 Assistant to the Director, Center for Computer Sciences  
 National Bureau of Standards, U.S. Department of Commerce

**Leon Gintzig**  
 Chairman and Professor of Health Care Administration, GWU

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 Management Analyst, Office of Education  
 U.S. Department of Health, Education, and Welfare

**H. E. Green**  
 Assistant Research Professor of Health Care  
 Administration, GWU

**Robert L. Holland**  
 Associate Professor of Business Administration, GWU

**Grace Hopper**  
 Director, Navy Planning Languages Group  
 Office of the Special Assistant to the Secretary of the Navy

**Arthur Jebens**  
 Director of Management Research  
 Office of the Assistant Secretary for Administration  
 U.S. Department of the Interior

**Clement Jeck**  
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 Management Research Division  
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U.S. Department of Agriculture

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**James McQueen**

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Bureau of the Budget

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Curator of Mathematic Instruments  
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The Smithsonian Institution

**Leo Miller**

Administrative Director  
President's Council on Youth Opportunity

**Ellsworth H. Morse, Jr.**

Director, Office of Policy and Special Studies  
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**Tom O'Connor**

Director, Inventory and Analysis Finance Staff  
Naval Supply Systems Command  
Department of the Navy

**John B. Oren**

Rear Admiral, USCG (Ret.)  
Executive Director  
Maritime Transportation Research Board  
National Research Council/National Academy of Sciences

**Chei-Min Paik**

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**Daniel E. Roman**

Professor of Management;  
Chairman, Committee on Doctoral Studies  
School of Government and Business Administration, GWU

**McKee Rosen**

Visiting Professor of Public Administration, GWU

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Director of Conferences, Seminars and Institutes  
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Institute for Defense Analysis

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Special Assistant to the Chief of Communications-Electronics  
Department of the Army

**Colonel O. L. Smiley**

Staff Assistant  
Office of Assistant Secretary of Defense (Installations and  
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**Lowell C. Smith**

Assistant to the Dean  
School of Government and Business Administration;  
Assistant Professor of Business and Public  
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**Waldo Sommers**

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**Robert F. Steadman**

Director, Committee for the Improvement of Management  
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Committee for Economic Development

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**Karl E. Stromsem**

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Office of the Director  
Bureau of the Budget

**Ernest Weiss**

Executive Director  
National Transportation Safety Board  
Department of Transportation

**Wilford White**

Director, Small Business Guidance and Development Center  
Howard University

**Rupert C. Woodward**

Director of Libraries, GWU

5. Workshop Conference on  
**THE URBAN CHALLENGE: THE MANAGEMENT AND INSTITUTIONAL RESPONSE**  
Airlie House, Warrenton, Va.

June 19-21, 1968

A Workshop co-sponsored by the Program of Policy Studies with  
HUD Office of Business Participation  
and Institute for Politics and Planning,  
and System Development Corporation

Conference Chairmen: Bernard A. Schriever  
Arthur W. Barber  
Michael M. Feuers  
Robert F. McAuliffe

Conference Coordinator: Robert G. Smith

**Participants:**

**Roy C. Amara**

Executive Director  
Systems Sciences  
Stanford Research Institute

**Charles A. Anderson**

President  
Stanford Research Institute

**Philip Arnow**

Director  
Office of Planning and Research  
Department of Labor

**Arthur W. Barber**

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**John Bebout**

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Rutgers University

**W. C. Beckwith**

Aerojet-General Corporation

**Harold K. Bell**

Director  
Urban Action and Experimentation Program  
Columbia University

**Robert Bell**

Office of Technology Utilization, NASA

**David Bendaniel**

Advanced Programs in Research and Development  
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**John C. Beresford**

Bureau of the Census  
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International City Managers Association

**Alfred Blumstein**

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**Lucille Branton**

**Wiley Branton**  
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Head, Department of Sociology  
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**Ben J. Brown**

Junior Associate  
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**C. Harold Brown**

Acting Director  
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University of Delaware

**James M. Brown**

GWU Professor of Law

**Frederick S. Burrell**

Manager  
Housing and Ocean Systems  
General Electric Company

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American Council on Education

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The Chase Manhattan Bank

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General Manager  
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GWU Program of Policy Studies, and  
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**David Jeffrey**  
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GW Magazine, GWU

**Robert G. Jones**  
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**Fred Jordan**  
Model Cities Administration, HUD

**Mark E. Keane**  
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**Eamon Kelley**  
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**Robert L. Kirby**  
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**Donald Kummerfeld**  
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**James L. Kunen**  
Executive Vice President  
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**Marjorie Lawson (Judge)**  
General Counsel  
Model Inner City Community Organization

**Stanley Lawwill**  
President  
Analytic Services, Inc.

**Helen Leavitt**  
Author

**William Leavitt**  
Senior Editor  
Air Force and Space Digest

**Leonard L. Lederman**  
Fellow, Battelle Memorial Institute

**Russell Leedy**  
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**Arthur J. Levin**  
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**Ida D. Levin**  
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**George Levine**  
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**William H. Magness**  
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**Grace Malakoff**  
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**Robert Martin**  
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**Hal S. Phillips**  
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Fairchild Hiller Corporation

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**Bernard A. Schriever**

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Advisory Committee  
GWU Program of Policy Studies

**James Singleton**

Vice President and Assistant Manager  
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**Robert G. Smith**

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**Peter Szanton**

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New York Office  
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**Richard Taft**

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**H. Ralph Taylor**

Assistant Secretary for Model Cities and  
Governmental Relations, HUD

**Michael Teitz**

Vice Chairman  
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University of California (Berkeley)

**Shirley Thomas**

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Mayor's Space Advisory Committee  
Office of the Mayor of Los Angeles

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**Douglas Whitlock**

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6. Seminar on

SCIENCE POLICY AND PUBLIC AFFAIRS IN EUROPE

December 4, 1968

Co-Chairmen: John Hanessian, Jr.

Associate Professorial Lecturer in Political Science, GWU

and Norman Kaplan

Professor of Sociology, GWU

Paper presented by Jean-Jacques Salomon, Chief of Science Policy Division

Organization for Economic and Cooperative Development

Paris, France

**Participants:**

**A. Wesley Barthelmes**

Administrative Assistant to The Honorable Richard Bolling  
United States House of Representatives

**Guy Black**

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Senior Staff Scientist, Program of Policy Studies;  
Professor of Economics; and Lecturer  
Johns Hopkins School of Advanced International Studies

**Henry David**

Executive Secretary  
Division of Behavioral Sciences  
National Academy of Sciences

**Steven Ebbin**

Staff Director  
Subcommittee on Government Research  
United States Senate

**Alfred J. Eggers**

Assistant Administrator  
Office of Policy Planning  
National Aeronautics and Space Administration

**Charles Falk**

Director of Planning  
National Science Foundation

**Harold P. Green**

Director of Law, Science and Technology Program;  
Professor of Law  
National Law Center, GWU

**Sydney Greybeal**

Deputy Assistant Director  
Science and Technology Bureau  
Arms Control and Disarmament Agency

**Andrew Gyorgy**

Professor of International Affairs  
Sino-Soviet Institute, GWU

**John Hanessian**

Senior Staff Scientist, Program of Policy Studies;  
Associate Professorial Lecturer in Political Science, GWU

**H. Theodore Heintz**

Budget Analyst  
Bureau of the Budget

**Robert S. Jordan**

Associate Professor of International Affairs, GWU

**Norman Kaplan**

Senior Staff Scientist, Program of Policy Studies;  
Professor of Sociology, GWU

**Wolfgang Kraus**

Professor of Political Science, GWU

**James E. Mahoney**

Senior Staff Scientist, Program of Policy Studies, GWU

**Ray Mayhew**

International Science Administrator  
Office of International Science Activities  
National Science Foundation

**Louis H. Mayo**

Director  
Program of Policy Studies in Science and Technology;  
Vice President for Advanced Policy Studies; and  
Professor of Law, GWU

**E. Gene Marr**

Research Officer  
Office of University Affairs, NASA

**Michael Michaelis**

D.C. Manager  
Arthur D. Little, Inc.

**Rex Minckler**

Senior Economist, Battelle Memorial Institute

**Ellis Mottur**

Senior Staff Scientist, Program of Policy Studies, GWU

**Harland B. Moulton**

International Relations Bureau  
U.S. Arms Control and Disarmament Agency

**Harold Orlans**

Senior Fellow  
The Brookings Institution

**Sydney Passman**

Chief, Weapons Systems Division  
Science and Technology Bureau  
U.S. Arms Control and Disarmament Agency

**J. D. Perkinson**

Director  
Department of Scientific Affairs  
Organization of American States

**Marvin Robinson**

Outer Space Affairs Group  
United Nations

**William Trainor**

Office of External Research  
Bureau of Intelligence and Research  
U.S. Department of State

**Edward Wenk, Jr.**

Executive Secretary  
National Council on Marine Resources and  
Engineering Development  
Executive Office of the President

**Dale Wolfe**

Executive Officer  
American Association for the Advancement of Science

**Herbert B. Quinn**

Chief, Research Branch  
Office of University Affairs, NASA

7. Seminar Series on  
**PROCESSES OF TECHNOLOGY ASSESSMENT**

Series Chairman: Louis H. Mayo

Papers were presented as follows:

**1. *Assessment Information Systems***

January 23, 1969—Clarence H. Danhof  
Senior Staff Scientist  
Program of Policy Studies, GWU

**2. *Technology Assessment and the Congress***

February 19, 1969—Richard A. Carpenter  
Senior Specialist in Science and Technology  
Science Policy Division  
Legislative Reference Service, Library of Congress

**3. *The Adversary Process in Technology Assessment***

March 19, 1969—Harold P. Green  
Professor of Law, and Director of Law, Science and Technology Program  
National Law Center, GWU

**4. *The Management of Technology Assessment***

April 23, 1969—Louis H. Mayo, Director of Series  
Vice President for Advanced Policy Studies  
Director, Program of Policy Studies  
Professor of Law  
National Law Center, GWU

**5. *Technology Assessment in the Executive Office of the President***

December 11, 1969—Charles V. Kidd  
Director, Council on Federal Relations  
The Association of American Universities

**6. *The Social Function of Technology Assessment***

January 22, 1970—Franklin P. Huddle  
Specialist in Science and Technology  
Science Policy Research Division  
Legislative Reference Service, Library of Congress

**7. *The Process of Technology Assessment in the Food and Drug Administration***

March 5, 1970—Alan Kaplan and Robert H. Becker  
Kleinfeld and Kaplan Law Offices

**8. *Technology Assessment or Technology Harassment?***

March 26, 1970—Leon Green, Jr.  
Director of Planning (Washington)  
Lockheed Aircraft Corporation

**9. *Processes of Technology Assessment: Telling It Like It Is—The National Transportation Safety Board***

April 23, 1970—Ernest Weiss  
Executive Director, National Transportation Safety Board  
Department of Transportation

**10. *Technology Assessment and Citizen Action***

May 26, 1970—Ellis Mottur  
Senior Staff Scientist  
Director, Technology Assessment Implementation Project  
Program of Policy Studies, GWU

**Participants:****Thomas W. Adams**Senior Policy Analyst  
Office of Policy, NASA**Bodo Bartocha**Deputy Head  
Office of Planning and Policy Studies  
National Science Foundation**Robert H. Becker**Associate  
Kleinfeld & Kaplan Law Offices  
Washington, D.C.**Everett H. Bellows**Vice President  
Olin Corporation  
Washington, D.C.**Charles F. Bingman**Deputy Director  
Organization and Management Planning Division, NASA**James M. Brown**

Professor of Law, GWU

**Carl W. Bruch**Chief  
Bacteriological Branch, Microbiology Division  
Bureau of Science  
Food and Drug Administration**John L. Buckley**Technical Assistant  
Office of Science and Technology  
Executive Office of the President**William Carey**Senior Consultant  
Arthur D. Little, Incorporated**Richard A. Carpenter**Head  
Environmental Policy Division  
Legislative Reference Service  
Library of Congress**Ira H. Cisin**Director  
Social Research Group; and  
Professor of Sociology, GWU**Joseph F. Coates**Staff Associate  
Office of Interdisciplinary Research  
National Science Foundation**Vary T. Coates**Research Scientist  
Program of Policy Studies, GWU**Joseph Cooper**Professor of Government  
Howard University**Joseph D. Crumlish**Manager  
Innovation Studies  
National Bureau of Standards  
U.S. Department of Commerce**Clarence H. Danhof**Senior Staff Scientist  
Program of Policy Studies, GWU**Charles L. Dunham**Chairman  
Division of Medical Services  
National Academy of Sciences**Alfred J. Eggers, Jr.**

Assistant Administrator for Policy, NASA

**Joseph V. Foa**

Professor of Engineering, GWU

**James Gehrig**Staff Director  
Committee on Aeronautical and Space Sciences  
U.S. Senate**Leo Goodman**Consultant on Energy and Natural Resources  
United Auto Workers**Philip Gould**Staff Member  
Systems Evaluation Division  
Institute for Defense Analyses**Irving Gray**Professor of Biology  
Georgetown University**Harold P. Green**Professor of Law;  
Director of Law, Science and Technology Program  
National Law Center, GWU**Leon Green, Jr.**Executive Secretary  
Defense Science Board  
Office of Director of Defense Research and Engineering  
U.S. Department of Defense**Wayne R. Gruner**Deputy Director  
Division of Mathematical and Physical Sciences  
National Science Foundation**Walter A. Hahn**Deputy Assistant Secretary for Scientific and  
Technical Planning  
U.S. Department of Commerce**Charles Halpern, Esq.**Director  
Center for Law and Social Policy  
Washington, D.C.**Irwin Halpern**Director  
Policy Analysis Staff, NASA;  
National Goals Research Staff  
The White House**John Hanessian, Jr.**Senior Staff Scientist, Program of Policy Studies;  
Associate Professor of International Affairs, GWU**Robert B. Heller**

Professor of Engineering and Applied Science, GWU

**Laurence Hewes**Vice President  
J. Richard Taft Associates  
Washington, D.C.**Guenther Hintze**

Research Professor of Electrical Engineering, GWU

**Isaac Hoover**Head  
Office of Noise Abatement  
Federal Aviation Administration  
Department of Transportation**Robert Howard**Budget Examiner  
U.S. Bureau of the Budget**Franklin P. Huddle**Specialist in Science and Technology  
Science Policy Research Division  
Legislative Reference Service  
Library of Congress**Alan Kaplan**Partner  
Kleinfeld & Kaplan Law Offices  
Washington, D.C.

**Norman Kaplan**

Senior Staff Scientist, Program of Policy Studies;  
Professor of Sociology, GWU

**Raphael G. Kasper**

Research Scientist  
Program of Policy Studies, GWU

**Frances O. Kelsey, M.D.**

Director  
Division of Scientific Investigations  
Food and Drug Administration

**Charles V. Kidd**

Director  
Council on Federal Relations  
Association of American Universities

**David Kieffer**

Senior Editor  
Chemical and Engineering News

**William M. Kitzmiller**

Legislative Assistant to U.S. Representative  
Richard L. Ottinger (D-N.Y.)

**Vincent Kleinfeld**

Partner  
Kleinfeld & Kaplan Law Offices  
Washington, D.C.

**Ezra Kohn**

Director for Research  
President's Commission on Consumer Interests

**James L. Kunen**

Executive Vice President  
The Eugene and Agnes Meyer Foundation

**W. Henry Lambright**

Professor of Political Science, Syracuse University;  
Special Assistant  
Sustaining University Affairs Program  
Office of University Affairs, NASA

**Robert Lamson**

Office of Planning and Policy Studies  
National Science Foundation

**Leonard Lederman**

Fellow and Senior Research Advisor  
Battelle Memorial Institute

**Joseph Luman**

Defense Analyst  
Subcommittee on Military Operations  
Committee on Government Operations  
U.S. House of Representatives

**James E. Mahoney**

Senior Staff Scientist  
Program of Policy Studies, GWU

**M. S. Malkin**

President  
NUS Corporation (Consultants to nuclear power industry)

**Harold G. Mandel**

Professor of Pharmacology  
GWU Medical School

**Joseph B. Margolin**

Senior Staff Scientist and Director  
Educational Policy Group  
Program of Policy Studies, GWU

**Rodney Markley**

Vice President  
Ford Motor Company

**William H. Marlow**

Director  
Institute for Management Science and Engineering;  
Professor of Applied Science, GWU

**Frank Marriott**

Assistant to the Vice President for Public Systems Marketing  
Westinghouse Electric Corporation

**Louis H. Mayo**

Vice President for Policy Studies and Special Projects;  
Director  
Program of Policy Studies in Science and Technology;  
Professor of Law  
National Law Center, GWU

**Emmanuel G. Mesthene**

Executive Director  
Program on Technology and Society  
Harvard University

**Michael Michaelis**

Manager  
Arthur D. Little, Inc.  
Washington, D.C. Office

**Arthur S. Miller**

Professor of Law, GWU

**Clarence C. Mondale**

Associate Professor of American Civilization;  
Director  
Washington Project, GWU

**Laurence I. Moss**

Executive Secretary  
Committee on Public Engineering Policy  
National Academy of Engineering

**Ellis Mottur**

Senior Staff Scientist  
Program of Policy Studies, GWU

**Robert Multhaupt**

Director  
Museum of History and Technology  
The Smithsonian Institution

**Arnold S. Nash**

Consultant on the Humanities  
National Goals Research Staff  
The White House

**Harold Orlans**

Senior Fellow  
The Brookings Institution

**John B. Phelps**

Washington Editor  
Physics Today  
American Institute of Physics

**Walter A. Radius**

Special Assistant to the Assistant Administrator  
Office of Defense Department and Interagency Affairs, NASA

**John Rasmussen**

Professor of Chemistry  
Yale University

**Thomas Ratchford**

Science Consultant  
Committee on Science and Astronautics  
U.S. House of Representatives

**Leonard Rodberg**

Resident Fellow  
Institute for Policy Studies  
Washington, D.C.

**S. McKee Rosen**

Visiting Professor of Public Administration, GWU

**Jean-Jacques Salomon**

Visiting Social Scientist  
MIT Center for International Studies; and  
Chief  
Science Policy Division, OECD  
Paris, France

**Leo Shubert**

Professor of Chemistry  
The American University

**Harvey B. Silverstein**

Research Assistant  
Program of Policy Studies, GWU

**Daniel Singer**

Partner  
Strasser, Spiegelberg, Fried, Frank & Kampelman  
Washington, D.C.

**Nozer Singpurwalla**

Professor of Engineering Administration, GWU

**Francis B. Smith**

Assistant Administrator for University Affairs, NASA

**Joel A. Snow**

Acting Head  
Office of Interdisciplinary Research on Problems of  
our Society  
National Science Foundation

**Henry Solomon**

Professor of Economics, GWU

**Richard E. Stephens**

Chief  
Management Administration Branch  
Office of University Affairs, NASA

**Robert L. Stern**

Manager  
Advanced Technology Services  
Assistant to the Senior Vice President for Research and  
Development  
The Xerox Corporation

**Gabor Strasser**

Technical Assistant  
Office of Science and Technology  
Executive Office of the President

**Charles S. Tidball**

Henry D. Fry Professor of Physiology  
GWU School of Medicine

**Duke C. Trexler**

Executive Secretary  
Drug Research Board  
National Academy of Sciences

**Laurence H. Tribe**

Executive Director  
Technology Assessment Panel  
Committee on Science and Public Policy  
National Academy of Sciences

**Joseph L. Tropea**

Director  
Behavioral Systems Policy Research Group;  
Program of Policy Studies, GWU

**E. Winslow Turner**

General Counsel  
Subcommittee on Intergovernmental Relations  
Committee on Government Operations  
U.S. Senate

**Ernest Weiss**

Executive Director  
National Transportation Safety Board  
Department of Transportation

**David H. West**

General Aviation Liaison Officer  
Federal Aviation Administration

**Charles W. Williams, Jr.**

Staff Director  
National Goals Research Staff  
The White House;  
Staff Associate  
Office of Planning and Policy Studies  
National Science Foundation

**Glen P. Wilson**

Professional Staff  
Committee on Aeronautical and Space Sciences  
U.S. Senate

**Clotaire Wood**

Deputy Director  
DOT/NASA Civil Aviation R&D Policy Study  
Department of Transportation

**Reuben E. Wood**

Professor of Chemistry, GWU

**James R. Wright**

Secretary  
Advisory Committee on Transportation Noise  
Highway Research Board  
National Academy of Sciences  
Counsel

**Philip Yeager**

Committee on Science and Astronautics  
U.S. House of Representatives

8. Seminar Series on  
**THE APPLICATION OF MODERN TECHNOLOGY TO URBAN PROBLEMS**

Series Coordinator: James M. Brown  
Professor of Law, GWU

Professor Brown presented discussion papers for the first two seminars of this series as indicated below:

**1. Homesteading in the 70's**

May 27, 1969

**2. The Influence of Modern Technology on Population Distribution**

July 15, 1969

The seminars continued in the winter of 1969-70 as follows:

**3. Toward a More Balanced and Better Urban Government: An Agenda for Intergovernmental Action**

September 16, 1969—James H. Pickford  
Senior Analyst  
Advisory Committee on Intergovernmental Relations

**4. Industrialization in Housing Construction**

November 18, 1969—John P. Eberhard  
Dean, School of Architecture and Environmental Design  
State University of New York at Buffalo

**5. The Role of Construction Labor in an Era of Industrialized Housing**

February 19, 1970—John M. Dickerman, Esq.  
Housing Industry Consultant, Washington, D.C.

**Participants:**

**Earl F. Bennett**

Manager  
Architectural Sales  
The Koppers Company, Inc.  
Pittsburgh, Pa.

**L. J. Bibri**

Director of Employee Relations  
Armstrong Cork Company

**Lawrence Biecka**

National Goals Research Staff  
The White House

**Roy Bivins**

Coordinator for Interagency Programs  
Office of Technology Utilization, NASA

**George T. Bogard**

Manager  
Corporate Market Development  
General Electric Company  
Louisville, Kentucky

**John K. Bowersox**

Executive Director  
Producer's Council, Inc.  
Washington, D.C.

**Paul Brace**

Director  
Application Review Division  
Office of New Communities Development, HUD

**James M. Brown**

Professor of Law, GWU;  
Coordinator  
Urban Problems Seminar Series  
Program of Policy Studies, GWU

**Carlos Campbell**

Special Assistant to Assistant Secretary for Metropolitan  
Development, HUD

**John L. Cameron**

Director  
Division of Facilities Development  
Office of Construction Service  
U.S. Office of Education

**David Carlisle**

Management Consultant  
Washington, D.C.

**Joseph M. Carlson**

Technology Utilization Division, NASA

**John Carver**

Commissioner  
Federal Power Commission

**Martin Chase**

President  
Chase, Rosen & Wallace (Operations Research)  
Alexandria, Va.

**Vary T. Coates**

Research Scientist  
Program of Policy Studies, GWU

**Clarence H. Danhof**

Senior Staff Scientist  
Program of Policy Studies, GWU

**L. P. Daspit**

Rear Admiral, USN (Ret.)  
Executive Director  
NAS/NAE Advisory Committee to HUD

**John M. Dickerman, Esq.**

Housing Industry Consultant  
Washington, D.C.

**Robert M. Dillon, A.I.A.**

Executive Director  
Building Research Advisory Board  
National Research Council, NAS

**William Dodge, Jr.**

Program Planning Specialist  
Model Cities Program for District of Columbia

**Loren F. Dorman**

Executive Vice President  
National Lumber and Building Material Dealers Association

**John P. Eberhard**

Dean and Director  
College of Architecture and Environmental Design  
State University of New York at Buffalo

**Ben Evans**

Executive Secretary  
Building Research Institute  
Building Research Advisory Board  
National Academy of Sciences

**Harold Finger**

Assistant Secretary for Research and Technology, HUD

**Harold Forsyth**

Executive Secretary  
Producers Advisory Committee (PAC)  
Producers Council, Inc.  
Washington, D.C.

**Marvin Friedman**

Vice President  
S. Ruitenberg & Associates  
Washington, D.C.

**Seymour Gardner**

Manager  
Land Sales  
The Rouse Company

**R. S. Garrett**

President  
Urban Systems Development Corp.  
Arlington, Virginia

**Christopher Gebeleine**

Urban Affairs Research Committee  
National Science Foundation

**Sigmund Gerber**

Director  
Family Housing Standards and Design  
Office of the Secretary of Defense (I&L)  
Washington, D.C.

**Richard R. Geyser**

Manager  
Public Buildings Section  
Portland Cement Association

**David Glick**

Counsel  
Subcommittee on Housing  
Committee on Banking and Currency  
U.S. House of Representatives

**Kingdon Gould, Esq.**

Vice President  
Parking Management, Inc.  
Washington, D.C.

**Harvey Hallenbeck, Jr.**

Manager  
Construction Affairs  
Chamber of Commerce of the United States  
Washington, D.C.

**Irwin Halpern**

Director  
Policy Analysis Staff, NASA; and  
National Goals Research Staff  
The White House

**Reese Hammond**

Special Representative  
International Union of Operating Engineers

**Richard T. Hanna**

U.S. House of Representatives (D-Calif.)

**Joseph F. Hennessey**

General Counsel  
U.S. Atomic Energy Commission

**Homer Hoyt**

President  
Homer Hoyt Associates  
(Consultants in Real Estate Economics)

**Page Ingraham**

Director  
State-Local Administration  
Appalachian Regional Commission

**Raphael G. Kasper**

Research Scientist  
Program of Policy Studies, GWU

**Jack Knetsch**

Director  
Center for Natural Resources Policy Studies, GWU

**Charles LeCraw**

General Manager  
Construction Marketing  
U.S. Steel Corporation

**Dorn McGrath**

Professor and Chairman  
Department of Urban and Regional Planning, GWU

**William J. McSorley**

Assistant to the President  
Building and Construction Trades Department, AFL-CIO

**James L. MacPherson**

Executive Director  
Construction Industry Collective Bargaining Commission  
Office of the Secretary  
U.S. Department of Labor

**Charles Mahaffey**

Deputy Chief  
Codes and Standards Section  
Building Research Division  
National Bureau of Standards

**James E. Mahoney**

Senior Staff Scientist  
Program of Policy Studies, GWU

**Allen Manville**

Assistant Director for Special Studies  
Advisory Commission on Intergovernmental Relations

**Louis H. Mayo**

Vice President for Policy Studies and Special Projects;  
Director  
Program of Policy Studies in Science and Technology;  
Professor of Law, GWU

**H. W. Merritt**

Assistant Administrator for Research  
Urban Mass Transit Administration  
Department of Transportation

**D. Quinn Mills**

Professor of Industrial Relations  
Sloan School of Management, MIT

**Herbert Millstein**

Marketing Sciences Inc.  
Washington, D.C.

**David Moore**

Program Manager  
In-Cities Program  
Office of the Assistant Secretary for Research and  
Technology, HUD

**Jerome C. Muys**

Assistant General Counsel and Chief  
Legal Group  
Public Land Law Review Commission  
Washington, D.C.

**Arthur S. Newburg**

Director  
Buildings Systems and Technology  
Operation Breakthrough, HUD

**Wilfred Owen**

Senior Fellow  
Economics Department  
The Brookings Institution

**Ronald Phillips**

Director  
Technology Utilization Division, NASA

**Floyd Peterson**

Consultant  
National Association of Electronic Companies  
Washington, D.C.

**James Pickard**

Director  
Program Analysis and Evaluation Staff, HUD

**James H. Pickford**

Senior Analyst  
Advisory Commission on Intergovernmental Relations

**Nicholas A. Pollack**

Vice President and General Manager  
Building Systems Division  
Urban Systems Development Corporation

**J. K. Pollard**

Policy Analyst  
Office of Policy, NASA

**Herbert B. Quinn**

Chief  
Research Branch  
Sustaining University Program  
Office of University Affairs, NASA

**James W. Roach**

Special Assistant to the Vice President  
The MITRE Corporation Westgate Research Lab  
McLean, Va.

**Thomas F. Rogers**

Vice President for Urban Affairs  
The MITRE Corporation  
McLean, Va.

**J. L. Russell**

Director  
Research and Analysis  
Construction Industry Collective Bargaining Commission  
U.S. Department of Labor

**Robert Schmitt**

Robert Schmitt Homes  
Cleveland, Ohio

**B. A. Schriever**

Vice-Chairman  
PPS Advisory Committee;  
Chairman of the Board  
Schriever & McKee Associates, Inc.

**John Sexton**

Arent, Fox, Kintner, Plotkin, and Kahn  
Washington, D.C.

**Joseph Sherman**

Housing Technology Advisor, HUD

**Malcolm Sherman**

Vice President (Residential Land Sales)  
The Rouse Company  
Columbia, Md.

**Henry M. Shine, Jr.**

Executive Director  
President's Council on Youth Opportunity

**William Shinnick**

Director  
NASA Technology Application Center  
University of New Mexico

**Howard Shuman**

Administrative Assistant to Senator William Proxmire (D-Wisc.)

**David Siskind**

Construction Starts Branch Chief  
Construction Statistics Division  
Bureau of the Census

**Richard E. Stephens**

Chief  
Management and Administration Branch  
Sustaining University Program  
Office of University Affairs, NASA

**Ralph Taylor**

Executive Vice President  
Mid-City Developers, Inc.  
Washington, D.C.

**Kent Watkins**

Vice President for Corporate Affairs  
Urban Systems Development Corporation  
Arlington, Va.

**J. A. Weinberg**

Chairman of the Board  
The Carey-Winston Company

**Albert Weinstein**

Assistant Director for Research Planning  
Office of the Assistant Secretary for Research and  
Technology, HUD

**Douglas Whitlock, Esq.**

Reed, Smith, Shaw & McCloy  
Washington, D.C.

**Merrill Whitman**

Assistant Director  
Office of Program Analysis  
Division of Reactor Development, AEC

**William Woodward**

Director  
Space Power and Electric Propulsion Division  
Office of Advanced Science and Technology, NASA

**Gene Wunderlich**

Chief  
Resource Institutions Branch  
Natural Resource Economics Division  
U.S. Department of Agriculture

**Irving B. Yochelson, Esq.**

Crossberg, Yochelson, Brill and Fox  
Washington, D.C.

**Arthur Zeisel**

Deputy Director for Water Resources Research  
Office of Science and Technology, HUD

***Observers from National Law Center, GWU:*****David Hendricks**

Assistant Professor of Law  
University of Arkansas

**Ed Ketchen**

LL.M. Candidate  
(Land Development Law Class)

**J. McGurren**

LL.M. Candidate  
(Land Development Law Class)

**Brian Ospy**

J.D. Candidate  
(Land Development Law Class)

**Barbara Wolitz**

Special Student  
Sociology Department

**Raymond Wolitz**

LL.M. Candidate  
(Land Development Law Class)



9. Seminar Series on  
**THE SOCIAL RELEVANCE OF SCIENCE AND TECHNOLOGY**

Co-Chairmen: John Moeser  
Department of Political Science  
and Vary Coates  
Research Scientist  
Program of Policy Studies, GWU

This series of three seminars for graduate students and faculty attempted to provide an interdisciplinary setting for discussion of the opportunities that science/public policy offers to students in the social sciences and humanities for graduate research and for future careers. Discussions were as follows:

**1. *Social Relevance of Science and Technology—An Overview***

February 27, 1970—Louis H. Mayo  
Vice President for Advanced Policy Studies  
Director, Program of Policy Studies, GWU  
and Guy Black  
Senior Staff Scientist  
Program of Policy Studies, GWU  
and John Logsdon  
Research Scientist  
Program of Policy Studies, GWU

**2. *The Moral Implications in Technological Development***

April 3, 1970—Victor Ferkiss  
Professor of Government  
Georgetown University

**3. *The Positive Attributes of Technology***

April 24, 1970—Group discussion to wind up series

***Participants:***

David Aaronson  
Ph.D. Candidate in Economics  
Ann Benfield  
M.A. Candidate in Religion  
Virginia Benson  
Ph.D. Candidate in Economics  
Dennis Brezina  
Ph.D. Candidate in American Studies  
Robert Brown  
Ph.D. Candidate in Political Science  
Tae Dong Chung  
Ph.D. Candidate in Political Science  
Vary T. Coates  
Ph.D. Candidate in Political Science  
Stanley Cohen  
Ph.D. Candidate in Psychology  
Bruce Dunning  
M.A. Candidate in Sociology  
Gene M. Griffith  
M.A. Candidate in Philosophy  
Robert Griggs  
M.A. Candidate in Sociology  
Charles S. Harris  
Assistant Professor of Sociology, GWU  
Jean Intermaggio  
Ph.D. Candidate in Psychology  
Thelma Levine  
Elton Professor of Philosophy, GWU

**Donald Leith**  
 M.A. Candidate in Philosophy, GWU  
**Ilona Melstrads**  
 M.A. Candidate in Economics  
**Warren F. Morriss**  
 M.A. Candidate in Philosophy  
**James N. Mosel**  
 Professor of Psychology, GWU  
**Lorin P. Nielson**  
 M.A. Candidate in Philosophy  
**Benjamin Nimer**  
 Professor of Political Science, GWU  
**Richard Ostling**  
 M.A. Candidate in Religion  
**Howard Rees**  
 University Chaplain, GWU  
**Gordon Rocca**  
 Ph.D. Candidate in Political Science  
**Alex Rode**  
 Ph.D. Candidate in Psychology  
**Margaret Schafer**  
 Ph.D. Candidate in Psychology  
**Frank Segel**  
 Ph.D. Candidate in Economics  
**Neil Seldman**  
 Ph.D. Candidate in Political Science  
**Jeff Silver**  
 Undergraduate—Religion  
**Dwight Steussy**  
 Ph.D. Candidate in Economics  
**Joseph Tropea**  
 Assistant Professor of Sociology, GWU;  
 Director  
 Behavioral Systems Research Project  
**Paul Vernier**  
 M.A. Candidate in Philosophy  
**Evelyn Viehman**  
 Ph.D. Candidate in Psychology  
**Rabbi Samuel Volkman**  
 M.A. Candidate in Religion  
**Harry E. Yeide**  
 Associate Professor of Religion  
 Assistant Dean of Columbian College of Arts and  
 Sciences, GWU  
**Eileen Zeitz**  
 M.A. Candidate in Sociology

10. Seminar Series on  
**APPLICATION OF COMPUTER SIMULATION TECHNIQUES TO SOCIAL AND  
POLITICAL DECISION-MAKING**

Series Chairman: Louis H. Mayo

Papers were presented as follows:

**1. *Urban Development Modeling***

March 19, 1970—Professor George C. Hemmens  
Director, Urban Systems Program  
Department of City and Regional Planning  
University of North Carolina at Chapel Hill

**2. *Simulations in the Consolidation and Utilization of Knowledge about International Relations***

February 18, 1971—Dr. Harold Guetzkow  
Visiting Research Scholar  
Carnegie Endowment for International Peace, New York;  
Professor and Co-Director  
International Relations Program, Northwestern University;  
Adjunct Professor of International Relations, GWU

***Participants:***

**Guy Black**

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Associate Professor of Business Economics, GWU

**Robert M. Behr**

Senior Staff Member  
National Security Council  
Executive Office of the President

**Frank Bernheisel**

Vice President  
Ecosystems, Inc.

**Robert Best**

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Force Structure Department  
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Application Review Division  
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Research Associate  
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**Glenn Bryan**

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Psychological Sciences Division  
Office of Naval Research  
Department of the Navy

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Computing Activities Division  
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**Ed Cushen**

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Technical Analysis Division  
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**Joseph V. Foa**

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School of Engineering and Applied Science, GWU

**Rex S. Garrett**

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Urban Systems Development Corporation

**James Gehrig**

Staff Director  
Senate Committee on Aeronautical and Space Sciences

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Visiting Research Scholar  
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New York;  
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**John Hanessian, Jr.**

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**George C. Hemmens**

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**Marc Henderson**

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Special Assistant to the Director for Academic Relations and Program Development  
Foreign Service Institute  
U.S. Department of State

**Thomas L. Hughes**  
President  
Carnegie Endowment for International Peace

**Charles F. Hutchinson**  
Deputy Director  
Life Sciences  
Air Force Office of Scientific Research  
Arlington, Virginia

**Les Janka**  
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School of Advanced International Studies  
The Johns Hopkins University

**Warren R. Johnston**  
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Foreign Affairs Division  
Congressional Research Service  
Library of Congress

**William B. Jones**  
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Bureau of Education and Cultural Affairs  
U.S. Department of State

**Murray Kamrass**  
Technical Staff  
Institute for Defense Analyses;  
President-elect  
Washington Operations Research Council

**Paul L. Laase**  
Advisor  
Department of International Trade  
U.S. Department of State

**Robert W. Lamson**  
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**James C. Martin, Jr. (USAF)**  
Chief  
Political Military Division  
Studies Analysis and Gaming Division  
Joint Chiefs of Staff

**Louis H. Mayo**  
Vice President for Policy Studies and Special Projects;  
Director of the Program of Policy Studies in Science and Technology;  
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**Joseph A. Navarro**  
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Urban Mass Transportation Project  
(Science and Technology)

**Benjamin Nimer**  
Professor of Political Science and International Affairs, GWU

**William A. Niskanen**  
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Office of Management and Budget

**Patrick O'Day**  
Vice President for Education  
Applied Simulations International, Inc.

**Kent Parrot (USAF)**  
Ph.D. Candidate (International Affairs), GWU

**Robert Pickett**  
Physicist  
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**Raymond Platig**  
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**Henry Polmer**  
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**Robert E. Pugh**  
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**Harold Snyder**  
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International Affairs Seminars  
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Washington, D.C.

**Louis B. Sohn**  
Counselor on International Law  
Office of Legal Advisor  
U.S. Department of State

**Richard E. Stephens**  
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Administrative and Management Research Branch  
Sustaining University Affairs Division  
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**Richard L. Van Wageningen**  
Training Officer  
Office of the Director of Projects  
International Bank for Reconstruction and Development

**Stephen J. Wayne**  
Assistant Professor of Political Science, GWU

**Arthur L. "Pat" Webster**  
Deputy Director  
Office of Systems Requirements, Plans and Information  
Office of the Secretary, DOT

**Ernest Weiss**  
Executive Director  
National Transportation Safety Board

**Arthur Zachai**  
Graduate Research Assistant  
School of Engineering and Applied Science, GWU

11. Seminar Series on  
**INTERNATIONAL ASPECTS OF OUTER SPACE**

Coordinator: John Hanessian

Papers were presented as follows:

**1. *The United Nations' Role in Outer Space***

May 8, 1970—A. Abdel-Ghani  
United Nations Secretariat

**2. *The Consortium as Model for Future International Cooperation in Space***

June 22, 1970—Richard Mizrack  
Assistant to Director  
International Agreements Division  
COMSAT

**3. *Prospects for International Participation in Post-Apollo Programs***

August 6, 1970—Arnold Frutkin  
Assistant Administrator for International Affairs  
NASA

**4. *International Space Cooperation in the Future: Problems and Prospects***

September 29, 1970—Russell Drew  
Office of Science and Technology  
Executive Office of the President

**Participants:**

Abdul-Hamid Abdel-Ghani  
Chief, Division of Outer Space Affairs  
UN Secretariat

Lt. Col. James A. Abrahamson, USAF  
National Aeronautics and Space Council  
Executive Office of the President

Ward Allen  
Deputy Assistant Secretary for International Organization  
Affairs  
U.S. Department of State

Walter Bailey  
Assistant Executive Secretary  
Director of Earth Sciences  
National Academy of Sciences

Richard Barnes  
Office of International Affairs, NASA

Col. Robert M. Behr, USAF  
Senior Staff Member, National Security Council Staff

Dr. Clifford Bloch  
Education and Human Resources  
Technological Assistance Bureau  
Agency for International Development

Donald Bowie  
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Professor John W. Brewer  
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Richard Brown  
Office of U.N. Political Affairs  
U.S. Department of State

Richard Campbell  
Office of Space and Environmental Affairs  
U.S. Department of State

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Special Assistant to the Assistant Administrator for Policy  
Office of Policy, NASA

William Cohen  
Director, International Plans and Programs  
Office of International Affairs, NASA

Bert Cowlen  
Institute for Public Administration

Paul Dembling  
General Counsel  
General Accounting Office

Thomas E. Donahue, Jr.  
Director  
International Agreements Division, COMSAT

Aldon Doud  
Department of State  
Stephen Doyle  
Special Assistant to the Director  
Office of Telecommunications Policy  
Executive Office of the President

Dr. Russell Drew  
Office of Science and Technology  
Executive Office of the President

Lester Fero  
National Aeronautics and Space Council  
Executive Office of the President

Dr. Franco Emilio Fiorio  
Scientific Counselor  
Embassy of Italy

William Fischer  
Research Coordinator  
EROS Program  
U.S. Geological Survey

Arnold Frutkin  
Assistant Administrator for International Affairs, NASA

Eilene Galloway  
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International Relations  
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James J. Gehrig  
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William Gevarter  
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Professor Harold Green  
National Law Center, GWU

Professor Harold Guetzkow  
(Northwestern University)  
c/o Carnegie Endowment for International Peace

**Frank Hammill**  
Counsel  
House Committee on Science and Astronautics  
U.S. Congress

**Professor John Hanessian, Jr.**  
Director  
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Program of Policy Studies, GWU

**Theodore Heintz**  
Earth Satellite Corporation

**Grant Hilliker**  
Office of External Research  
U.S. Department of State

**Professor Robert Jordan**  
Department of Political Science, GWU

**Dr. David W. Keller**  
Manager  
Earth Resources Program  
General Electric Company  
Valley Forge Space Technology Center

**Clarence Kramer**  
Assistant to the Vice President—International, COMSAT

**Dr. Robert W. Lamson**  
Staff Associate  
Office of Planning and Policy Studies  
National Science Foundation

**Leonard Lederman**  
Deputy Head  
Office of Economic and Manpower Studies  
National Science Foundation

**S. Benedict Levin**  
Earth Satellite Corporation

**Dr. Talbot Lindstrom**  
Acting Executive Officer  
ISA/Policy Plans and NSC Affairs  
Department of Defense

**Dr. John Logsdon**  
Research Scientist  
Program of Policy Studies, GWU

**William Long**  
Science and Technology Office  
Technical Assistance Bureau  
Agency for International Development

**Dr. Joseph Margolin**  
Director  
Educational Policy Group  
Program of Policy Studies, GWU

**Dr. Louis H. Mayo**  
Vice President for Advanced Policy Studies  
Program of Policy Studies, GWU

**Stuart H. McIntyre**  
Officer in Charge of International Security Affairs  
Office of U.N. Political Affairs  
U.S. Department of State

**Richard Mizrack**  
Assistant to the Director  
International Agreements Division, COMSAT

**James R. Morrison**  
Office of International Affairs, NASA

**Harland B. Moulton**  
Research Group  
National War College

**Dr. Maurice Mountain**  
Director  
Strategic Trade and Disclosure/ISA  
U.S. Department of Defense

**Henry Myer**  
Science and Technology Office  
Technical Assistance Bureau  
Agency for International Development

**Professor Benjamin Nimer**  
Political Science Department, GWU

**Robert Packard**  
Director  
Office of Space and Environmental Science Affairs  
Bureau of International Scientific and Technological Affairs  
U.S. Department of State

**Jacques Palgen**  
Allied Research Corporation, Inc.

**Dr. Sidney Passman**  
Chief  
Weapons System Division  
Science and Technology Bureau  
Arms Control and Disarmament Agency

**Joe Pelton**  
COMSAT

**Dr. J. D. Perkinson**  
Director  
Department of Scientific Affairs  
Organization of American States

**Robert Porter**  
President  
Earth Satellite Corporation

**Herb Reis**  
Assistant Legal Adviser  
U.S. Department of State

**Dr. Humberto Ricciardi**  
Specialist for Space Applications  
Department of Political and Security Council Affairs  
U.N. Secretariat

**Edward Risely**  
Technical Advisor  
General Advisory Committee on Arms Control and  
Disarmament  
Arms Control and Disarmament Agency

**D. R. Rodgers**  
Manager  
Missile and Space Field Operations  
Defense Programs Division  
General Electric Company

**Dr. Burton Sapin**  
Dean  
School of Public and International Affairs, GWU

**Raymond J. Serradeil**  
Science Attache  
Embassy of France

**Dr. S. Fred Singer**  
Deputy Assistant Secretary for Scientific Programs  
U.S. Department of the Interior

**Martin Stoller**  
Director  
International Operations  
Earth Satellite Corporation

**David Strother**  
Office of International Affairs, NASA

**Murray Todd**  
Executive Secretary  
Office of the Foreign Secretary  
National Academy of Sciences

**Dr. Robert Webber**  
Deputy Director  
Office of Space and Environmental Affairs  
U.S. Department of State

**Robert I. Widder**  
Battelle Memorial Institute

12. Seminar Series on  
**TECHNOLOGY ASSESSMENT IMPLEMENTATION**

Co-Chairmen: Ellis Mottur  
Senior Staff Scientist  
Program of Policy Studies  
and Raphael Kasper  
Research Scientist  
Program of Policy Studies

**1. *The Use of Drugs to Control Hyperactivity in Grade School Children***

November 5, 1970—Panelists included:

Charles R. Halpern  
Director  
Center for Law and Social Policy

and Ellis R. Mottur (Moderator)  
Director  
Technology Assessment Implementation Project

and Mark N. Ozer  
Associate Neurologist and Director  
Learning Research Unit  
Children's Hospital

and Joseph L. Tropea  
Professor  
Sociology Department, GWU

and Paul H. Wender  
Child Psychiatrist  
Laboratory of Psychology  
Division of Clinical Behavior Research  
National Institute of Mental Health

**2. *Problems of Implementing Technology Assessments: The Congressional Context***

December 3, 1970—Hon. George E. Brown, Jr.  
Member of Congress

**3. *Aircraft Noise Abatement as a Case Study in the Implementation of Technology Assessment***

December 17, 1970—James R. Wright  
National Research Council  
National Academy of Sciences

**4. *Automotive Air Pollution and Problems of Implementation of Technology Assessment***

January 14, 1971—John C. Esposito  
Center for the Study of Responsive Law

**5. *Policy Alternatives for Environmental Management***

March 23, 1971—Robert U. Ayres  
Vice President  
International Research and Technology Corporation

**6. *Limitations on Implementation of Technology Assessment***

April 22, 1971—Professor Harold P. Green  
Director of Law, Science and Technology Program, GWU

**7. *The Role of the Legal System in Society's Implementation of Technology Assessment***

May 6, 1971—Professor Milton Katz  
Director of International Legal Studies  
Harvard University Law School

**8. *The Role of Citizen Action in the Implementation of Technology Assessment***

May 25, 1971—William Michael Kitzmiller  
Executive Director, Grassroots

**Participants:****George Alderson**Legislative Director  
Friends of the Earth**Frederick R. Anderson**Editor-in-Chief  
Environmental Law Reporter**Peter Anderson**

Wisconsin's Environmental Decade

**Robert U. Ayres**Vice President  
International Research and Technology Corporation**Bodo Bartocha**Deputy Executive Secretary of the Executive Council  
National Science Foundation**Kenneth Bass**

Legislative Assistant to Congressman Emilio Q. Daddario

**J. Franklin Bernheisel**Vice President  
Ecosystems, Inc.**Eugene Bierley**

Assistant to Congressman Charles A. Mosher

**Guy Black**

Professor of Business Economics, GWU

**Frederick W. Bowditch**Director  
Emission Control  
Engineering Staff  
General Motors Technical Center**David S. J. Brown**

Legislative Assistant to Congressman Paul N. McCloskey, Jr.

**George E. Brown**

Congressman

**James M. Brown**

Professor of Law, GWU

**Robert G. Brown**Chairman  
Department of Sociology, GWU**Carl W. Bruch**Chief  
Bacteriological Branch  
Division of Microbiology  
Bureau of Science  
Food and Drug Administration**John L. Buckley**Technical Assistant  
Office of Science and Technology  
Executive Office of the President**Richard A. Carpenter**Chief  
Environmental Policy Division  
Congressional Research Service  
Library of Congress**Carolyn Coates**Representing: The Reverend James E. Coates  
Vice President  
Board of Education  
District of Columbia**Joseph F. Coates**Special Assistant to the Assistant Director for  
Research Applications  
National Science Foundation**Vary T. Coates**Research Scientist  
Program of Policy Studies in Science and Technology, GWU**John J. Coffey, Jr.**Senior Associate for Natural Resources and  
Environmental Quality  
Community and Regional Development Group  
Chamber of Commerce of the United States**Victor Cohn**Science Editor  
The Washington Post**Donald E. Cunningham**Special Assistant for Assessment Activities  
Office of the Director  
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Center for Law and Social Policy

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Environmental Protection Agency**Michael Faber**Federal Communications Commission  
(brought by D. Ramey)**Dan H. Fenn, Jr.**President  
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Lecturer  
Harvard Business School**Roger G. Flynn**Manager  
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Air Transport Association**Peter N. Gammelgard**Senior Vice President  
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American Petroleum Institute



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Executive Secretary  
Defense Science Board  
Office of the Director of Defense Research and Engineering

**Daniel S. Greenberg**

Publisher  
Science and Government Report

**Lawrence M. Greenberg**

Director of Drug Studies  
Hyperactive Children's Clinic  
Hillcrest Children's Center

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National Goals Research Staff  
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Homemaker and Parent

**Phineas Indritz**

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**Valarie Justice**

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**James F. King, Jr.**

(no affiliation)

**Lynn Kitzmiller**

e. p. press

**Wm. Michael Kitzmiller**

Executive Director  
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**Saul Levine**

Assistant Director  
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Atomic Energy Commission  
National Institute of Mental Health

**Harvey Lieber**  
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American University

**Ronald S. Lipman**  
Psychopharmacology Research Branch

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American University

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President's Advisory Counsel for Management Improvement

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U.S. House of Representatives

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**Drucilla Ramey**  
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Environmental Law Program, GWU

**Bob Richard**  
Administrative Assistant to Congressman John W. Davis

**Philip C. Ritterbush**  
Chairman  
Organization Response

**Leonard Rodberg**  
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Institute for Policy Studies

**Jill Schuker**  
Assistant to Congressman Michael J. Harrington

**Charles S. Sheldon, III**  
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Science Policy Research Division  
Legislative Reference Service  
Library of Congress

**Susan C. Simon**  
International Research and Technology Corporation

**William Simons**  
President  
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**Daniel Singer**  
Attorney at Law  
Strasser, Spiegelberg, Fried, Frank and Kampelman

**Joel A. Snow**  
Deputy Assistant Director for Research Applications  
National Science Foundation

**Charles W. T. Stephenson**  
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National Aeronautics and Space Council  
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**Jeremy J. Stone**  
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Subcommittee on Intergovernmental Relations  
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Washington Report  
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Metropolitan Washington Coalition for Clean Air

**Robert Witherspoon**

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**Charles Witter**

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**James R. Wright**

Secretary  
Advisory Committee on Transportation Noise  
National Research Council  
National Academy of Sciences

**Edward F. Zigler**

Director  
Office of Child Development  
Department of Health, Education, and Welfare

13. Seminar on  
**OPTIMUM POPULATION**

December 2, 1970

Speaker: Honorable S. Fred Singer  
Deputy Assistant Secretary for Scientific Programs  
U.S. Department of the Interior

**Participants:**

**Raymond L. Bisplinghof**  
Deputy Director  
National Science Foundation

**Henry E. Brady**  
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**Jack M. Carlson**  
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**Vary T. Coates**  
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Office of Senator Bob Packwood (R-Ore.)

**Jerry W. Combs**  
Chief  
Behavioral Sciences Branch  
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National Institute of Child Health and Human Development

**Carol T. Foreman**  
Chief Information Liaison  
Center for Family Planning Program Development  
Planned Parenthood—World Population

**David L. Gamon**  
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Population Matters  
U.S. Department of State

**Alvaro Garcia-Pena**  
Vice President  
Population Reference Bureau

**Louis M. Hellman**  
Deputy Assistant Secretary for Population Affairs  
Department of Health, Education, and Welfare

**Hendrik S. Houthakker**  
Member  
President's Council of Economic Advisers

**Phineas Indritz**  
Chief Counsel  
Subcommittee on Conservation and Natural Resources  
U.S. House of Representatives

**Robert W. Lamson**  
Staff Associate  
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National Science Foundation

**Hans Landsberg**  
Director  
Appraisal Program  
Resources for the Future, Inc.

**Congressman Paul N. McCloskey**  
(R-Calif.)

**Louis H. Mayo**  
Vice President for Policy Studies and Special Projects;  
Director  
Program of Policy Studies in Science and Technology, GWU

**Arthur S. Miller**  
Professor of Law, GWU

**Mary Mogee**  
Graduate Research Assistant  
International Studies Group  
Program of Policy Studies in Science and Technology, GWU

**Congressman Charles A. Mosher**  
(R-Ohio)

**Ellis Mottur**  
Director  
Technology Assessment Implementation Project  
Program of Policy Studies in Science and Technology, GWU

**Keir Nash**  
Senior Political Scientist  
President's Commission on Population Growth and the  
American Future

**Robert Park, Jr.**  
Deputy Director  
President's Commission on Population Growth and the  
American Future

**Robert C. Richardson**  
Senior Associate  
Schriever & McKee Associates  
Arlington, Va.

**Robert Ridker**  
Director  
Population Studies Program  
Resources for the Future, Inc.

**James A. Rose, Jr.**  
Consultant  
Westinghouse Learning Corporation  
Bladensburg, Md.

**Douglas Ross**  
Legislative Assistant  
Office of Senator Joseph D. Tydings (D-Md.)

**Jean Ruffin**  
Research Scientist  
Program of Policy Studies, GWU

**Richard Schisler**  
Special Assistant to Senator-elect Robert Taft (R-Ohio)

**S. Fred Singer**  
Deputy Assistant Secretary for Scientific Programs  
U.S. Department of the Interior

**Senator Joseph D. Tydings**  
(D-Md.)

**Walter N. Walmsley**  
Consultant  
Population Crisis Committee

**Quentin M. West**  
Administrator  
Foreign Economic Development Service  
U.S. Department of Agriculture

**Charles F. Westoff**  
Executive Director  
President's Commission on Population Growth and the  
American Future

**Gooloo Wunderlich**  
Demographer  
Office of Population Affairs  
Department of Health, Education, and Welfare

14. Seminar on  
**REGAINING THE POLICY INITIATIVE IN THE MODERN UNIVERSITY**

December 16, 1971

Speaker: Philip C. Ritterbush  
Chairman  
Organization: :Response

***Participants:***

**Guy Black**

Senior Staff Scientist  
Program of Policy Studies;  
Associate Professor of Business Economics, GWU

**Robert A. Brooks**

Deputy Under Secretary  
The Smithsonian Institution

**John J. Corson**

Chairman  
Fry Consultants, Inc.

**Richard W. C. Falknor**

Special Assistant to Congressman Thomas Foley (D-Wash.)

**Hendrik Gideonse**

Subcommittee on Executive Reorganization and  
Government Research  
Senate Committee on Government Operations

**Martin A. Kramer**

Director  
Higher Education Planning  
Office of the Assistant Secretary for Planning and Evaluation  
Department of Health, Education, and Welfare

**Louis H. Mayo**

Vice President for Policy Studies;  
Director  
Program of Policy Studies;  
Professor of Law, GWU

**Harold Orlans**

Senior Fellow  
The Brookings Institution

**David E. Ryer**

Special Assistant to the Director  
National Science Foundation

**Philip Scribner**

Assistant Professor  
Philosophy and Religion  
American University

**Ralph Widner**

Director  
Center for the Study of Contemporary Issues  
Ohio State University

**Douglas Trout**

President  
Douglas Trout Associates

15. Seminar Series on  
**TECHNOLOGY ASSESSMENT METHODOLOGY**

Papers were presented as follows:

**1. *Generating Social Impact Scenarios, A Key Step in Making Technology Assessment Studies***

January 20, 1972—Martin V. Jones  
The MITRE Corporation

**2. *Design Evaluation in Technology Assessment Illustrated by Auditory Impedance and Sound Distribution Problems***

March 9, 1972—John F. Halldane  
Environmental Systems Consultant  
Derwood, Md.

**3. *Planning and Programing in the Soil Conservation Service***

May 18, 1972—Roy M. Gray  
Program Planning Division  
Soil Conservation Service  
U.S. Department of Agriculture

**Participants:**

**Betsy Amin-Arsala**

Research Associate  
Program of Policy Studies, GWU

**James R. Balsley**

Assistant Director for Research  
U.S. Geological Survey

**Terry Barnett**

Legislative Assistant  
Office of Senator Charles Mathias

**Stanley Berman**

Budget Examiner  
Natural Resources Division  
Office of Management and Budget

**Clifford Berg**

Management Analyst  
Office of Management and Budget  
Executive Office of the President

**Guy Black**

Senior Staff Scientist  
Program of Policy Studies, GWU

**Clark Blake**

Staff Geologist  
U.S. Geological Survey

**Bruce Blanchard**

Director  
Office of Environmental Project Review  
U.S. Department of the Interior

**John E. Blodgett**

Analyst  
Environmental Policy Division  
Congressional Research Service  
Library of Congress

**James M. Brown**

National Law Center, GWU

**Harold Bullis**

Research Analyst  
Science Policy Research Division  
Congressional Research Service  
Library of Congress

**Joseph M. Carlson**

Chief  
Dissemination and Program Evaluation Division, NASA Hqts.

**Rosemary Chalk**

Research Assistant in Science and Technology  
Congressional Reference Service  
Library of Congress

**Vary T. Coates**

Research Scientist  
Program of Policy Studies, GWU

**Edward Cornish**

President  
The World Future Society

**Elizabeth Cuadra**

Deputy for Program Development  
Office of Noise Abatement and Control  
U.S. Environmental Protection Agency

**Lawrence F. Cunningham**

Strategic Planner  
Office of Systems Analysis and Information  
U.S. Department of Transportation

**Harold F. Davidson**

Physical Scientist  
Office of Chief of Research and Development  
U.S. Department of the Army

**William A. Drevo, A.I.A.**

Planning Consultant

**Steven Ebbin**

Senior Staff Scientist  
Program of Policy Studies, GWU

**Nancy Ebersole**

Program Analyst  
Office of Systems Analysis and Information  
U.S. Department of Transportation

**Jack Ebetino**

Program Analyst  
Office of Planning and Analysis  
U.S. Atomic Energy Commission

**Terry Elkins**

Office of Noise Abatement and Control  
Environmental Protection Agency

**William A. Fischer**

Research Associate  
Program of Policy Studies, GWU

**G. L. Fisher**

Program Analyst  
Analysis and Evaluation Branch  
Office of the Associate Director for Planning and Evaluation  
National Institutes of Health  
Department of Health, Education, and Welfare

**Daniel Flynn**

Chief  
Applied Acoustics and Illumination Section  
Sensory Environment Branch  
Building Research Division  
National Bureau of Standards  
U.S. Department of Commerce

**Bill Goldbeck**

Special Assistant to the Assistant Secretary for  
Research and Technology  
Department of Housing and Urban Development

**James G. Gross**

Program Manager  
Office of Advanced Ship Development  
Maritime Administration  
U.S. Department of Commerce

**Roy M. Gray**

Program Analyst  
Program Planning Division  
Soil Conservation Service  
U.S. Department of Agriculture

**John F. Halldane**

Environmental Systems Consultant  
Derwood, Md.

**Walter A. Hahn**

Senior Specialist in Science and Technology  
Congressional Research Service  
Library of Congress

**Frank Hansing**

Director  
Office of University Affairs, NASA

**Guenther Hintze**

School of Engineering and Applied Science, GWU

**Phineas Indritz**

Chief Counsel  
Subcommittee on Conservation and Natural Resources  
House Committee on Government Operations

**Martin V. Jones**

Staff  
The MITRE Corporation  
McLean, Va.

**Raphael G. Kasper**

Research Scientist  
Program of Policy Studies, GWU

**Thomas J. Kennedy, Jr.**

Associate Director for Program Planning and Evaluation  
National Institutes of Health

**David M. Kiefer**

Senior Editor  
Chemical & Engineering News

**Robert W. Lamson**

Staff Associate  
Science Policy Research Section  
National Science Foundation

**Leonard Lederman**

Deputy Director  
Office of Exploratory Research and Problem Assessment  
National Science Foundation

**Howard J. Lewis**

Director  
Office of Information  
National Academy of Sciences

**Joseph B. Margolin**

Senior Staff Scientist and Director  
Educational Policy Group  
Program of Policy Studies, GWU

**Milton Marney**

Research Associate  
Lambda Corporation  
Arlington, Va.

**David F. Mayo**

GWU

**Louis H. Mayo**

Vice President  
Program of Policy Studies and Special Projects;  
Director  
Program of Policy Studies;  
Professor of Law, GWU

**Stedman Noble**

Mathematical Economist  
International Research and Technology Corporation

**Paul N. Romani**

Research Associate  
Program of Policy Studies, GWU

**Glenn Schweitzer**

Director  
Office of Science and Technology, AID  
U.S. Department of State

**Cora M. Siddayao**

Research Associate  
Program of Policy Studies, GWU

**Alan R. Siegel**

Director  
Environmental Factors and Public Utilities Division  
Office of the Assistant Secretary for  
Research and Technology  
Department of Housing and Urban Development

**Murray Turoff**

Operations Research Analyst  
Office of Information and Analysis, OEP  
Executive Office of the President

**Kenneth Webb**

Senior Researcher  
The Urban Institute

**John J. Zimmerman**

Research Assistant  
Program of Policy Studies, GWU

**INFLUENCE OF 'SCIENTIFIC' DATA ON DECISIONAL BEHAVIOR IN  
CONTEXTS REQUIRING THE EVALUATION OF THE SOCIAL COSTS OF  
ENVIRONMENTAL NOISE INTRUSION**

April 2, 1972

Speaker: Louis H. Mayo

**Participants:**

**Tod Anuskiewicz**

Biological Sciences Communication Project, GWU

**James M. Brown**

Professor of Law  
National Law Center, GWU

**Herbert N. Cantor**

Project Director  
Public Technology, Inc.

**Richard L. Chapman**

National Academy of Public Administration

**Vary T. Coates**

Program of Policy Studies, GWU

**Elizabeth Cuadra**

Deputy for Program Development  
Office of Noise Abatement and Control  
Environmental Protection Agency

**Susan Doscher**

Intergovernmental Science and Technology Program  
Science Policy Research Division  
Library of Congress

**Bill Goldbeck**

Special Assistant to the Assistant Secretary for  
Research and Technology  
Department of Housing and Urban Development

**M. Frank Hersman**

Intergovernmental Science Programs  
National Science Foundation

**John D. Holmfeld**

House Committee on Science and Astronautics  
U.S. Congress

**Louis H. Mayo**

Vice President for Policy Studies and Special Projects;  
Professor of Law;  
Director  
Program of Policy Studies, GWU

**Alfred A. Perry**

Director  
Urban Management Systems  
President's Advisory Council on Management Improvement  
Office of Management and Budget

**Peter W. Powell**

Legislative Counsel  
Senate Commerce Committee  
U.S. Congress

**John O. Powers**

Chief Environmental Scientist  
Office of Environmental Quality  
Federal Aviation Agency

**Howard C. Reese**

Program of Policy Studies, GWU

**Arnold W. Reitze**

Director  
Environmental Law Program, GWU

**Clark Sessions**

Industrial Engineer  
Headquarters Defense Supply Agency  
Department of Defense

**Cora Siddayao**

Program of Policy Studies, GWU

**Alan R. Siegel**

Director  
Environmental Factors and Public Utilities Division  
Research and Technology Office  
Department of Housing and Urban Development

**John J. Zimmerman**

Program of Policy Studies, GWU



## 17. JOINT SYMPOSIUM ON TECHNOLOGY ASSESSMENT: A FUTURE ORIENTED POLICY TOOL

June 5, 1972

Co-sponsored by the Program of Policy Studies with  
The Institute of Management Sciences,  
and The World Future Society

Symposium Coordinator: Vary T. Coates

Symposium Committee Co-Chairmen:

WFS	Joseph Coates, National Science Foundation
TIMS	Kenneth Gordon, Resource Management Corporation
PPSST	Raphael Kasper

Speakers:

### ***Perspectives on Technology Assessment: What it is and Why it is Important***

Professor Edward Wenk  
University of Washington, Seattle  
(formerly Chief of Science Policy Research Division  
Congressional Research Service)

### ***Institutional Arrangements for Technology Assessment***

- *Survey of Government Experience*  
Vary T. Coates  
Program of Policy Studies, GWU
- *The Business Point of View*  
Carl Madden  
Chief Economist  
U.S. Chamber of Commerce
- *Congressional Actions*  
Walter Hahn  
Science Policy Research Division  
Library of Congress
- *Environmental Impact Statements*  
David Aggerhold  
U.S. Army Corps of Engineers

### ***The Lawyer's Interface with Expanding Technology***

Professor Harold Green  
National Law Center, GWU

### ***Methodology for Technology Assessment—Two Views***

Selwyn Enzer	James Balsley
Institute for the Future; and	U.S. Geological Survey

### ***Recent Exemplary Assessments:***

- *Violence on TV*  
George Comstock  
RAND Corporation  
(formerly with the Surgeon General's Scientific Advisory Committee)
- *Alternatives to the Internal Combustion Engine*  
Douglas Harvey  
Hittman Associates
- *Expansion of Kennedy Airport*  
Steven Ebbin  
Program of Policy Studies, GWU

### ***An Exercise in Technology Assessment: A Workshop***

participation under direction of Joseph Coates  
National Science Foundation

18. Seminar Series on  
**UNITED STATES NATIONAL GOALS AND TECHNOLOGICAL STRATEGY**  
Series Coordinator: John M. Logsdon

Papers were presented as follows:

**1. *Current U.S. Policy for Science and Technology***

September 26, 1972—Edward David  
Science Adviser to the President

**2. *U.S. Technological Strategy: Alternatives for the 1970's***

November 2, 1972—J. Herbert Hollomon  
Director  
Center for Policy Alternatives  
Massachusetts Institute of Technology

**3. *Science Policy in an Era of Technological Strategy***

December 7, 1972—Philip Handler  
President  
National Academy of Sciences

**4. *Public Technology: Promise and Problems***

January 15, 1973—John Mock  
Science Adviser to the Governor of Georgia

**5. *Federal Support of Civilian Technology: Theory versus Practice***

February 22, 1973—George Eads  
Department of Economics, GWU

**6. *U.S. Technology: Policy Issues***

March 28, 1973—Michael Boretsky  
Senior Policy Analyst  
Department of Commerce

**7. *The Federal Government and Social Research and Development***

April 26, 1973—Roger Levien  
Director  
Washington Domestic Programs  
The RAND Corporation

***Seminar Participants:***

**Edward Allen**

Deputy Assistant Secretary for International  
Economic Research  
Department of Commerce

**Frederick Anderson**

Editor-in-Chief  
Environmental Law Reporter

**Kathryn Arnow**

Science Resources Studies  
National Science Foundation

**Peter Bankson**

Graduate Student, GWU

**Claude Barfield**

National Journal

**James Barry**

Graduate Student, GWU

**Michael Bass**

Graduate Student, GWU

**Miriam Bazelon**

Graduate Student, GWU

**David Beckler**

Assistant to the Director  
Office of Science and Technology

**Johan Benson**

American Institute of Aeronautics and Astronautics

**Helen Berkowitz**

School of Public and International Affairs, GWU

**Guy Black**

Program of Policy Studies in Science and Technology, GWU

**William Boesman**

Science Policy Research Division  
Library of Congress

**Ihor Bohachevsky**

Bell Labs

**Michael Boretsky**

Senior Policy Analyst  
U.S. Department of Commerce

**Carroll Brickenkamp**

Office of Programs  
National Bureau of Standards

**Edward Burger**

Office of Science and Technology  
Executive Office of the President

**Steve Burks**

Department of Political Science, GWU

**Barbara Burns**

National R&D Assessment Program  
National Science Foundation

**Billy Caldwell**

Office of Science and Technology  
Executive Office of the President

**Steven Carhart**

Energy Policy Research Project  
Ford Foundation

**Marshall Carter**

Graduate Student, GWU

**Rosemary Chalk**

Science Policy Research Division  
Library of Congress

**Richard Chapman**

Senior Research Assistant  
National Academy of Public Administration

**Sue Coady**

Science Resource Studies  
National Science Foundation

**Joseph Coates**

RANN Program  
National Science Foundation

**Vary Coates**

Program of Policy Studies in Science and Technology, GWU

**Deborah Cobin**

Office of International Programs  
National Science Foundation

**Nathaniel Cohen**

Office of Policy Analysis, NASA

**Lynda Connor**

Management Analysis Office  
National Science Foundation

**Ruth Craig**

Graduate Student, GWU

**John Cummins**

Graduate Student, GWU

**W. Edward Cushen**

Office of Intergovernmental Science Programs  
National Science Foundation

**Lawrence Dash**

Science Resource Studies  
National Science Foundation

**Diane Davenney**

National R&D Assessment Program  
National Science Foundation

**Stanley Dolins**

Science Resource Studies  
National Science Foundation

**Susan Doscher**

Science Policy Research Division  
Library of Congress

**George Eads**

Department of Economics, GWU

**Steven Ebbin**

Program of Policy Studies in Science and Technology, GWU

**Helene Ebenfield**

Science Resources Studies  
National Science Foundation

**David Elliott**

National Security Council

**Lloyd Elliott**

President, GWU

**Robert Ehrhardt**

Graduate Student, GWU

**Lawrence Fabian**

Brookings Institution

**James Falk**

Department of Operations Research, GWU

**Mark Frankel**

Program of Policy Studies in Science and Technology, GWU

**Ozmun Fundingsland**

Technology Advancement  
General Accounting Office

**Kenneth Gayer**

RANN Program  
National Science Foundation

**Peter Goldschmidt**

University of California  
Washington Office

**Joanne Gorman**

Graduate Student, GWU

**Harold Glaser**

Deputy Director for Science and Technology  
Office of National R&D Assessment  
National Science Foundation

**Harold Green**

Director  
Law, Science and Technology Program, GWU

**Daniel Greenburg**

Science and Government Report

**Donald Gross**

School of Engineering and Applied Science, GWU

**Walter Hahn**

Senior Specialist in Science and Technology  
Library of Congress

**John Hanessian**

RANN Program  
National Science Foundation

**John H. Hawes**

Graduate Student, GWU

**M. Frank Hersman**

Head  
Office of Intergovernmental Science Programs  
National Science Foundation

**Ellen Hoff**

Communications Satellite Corporation

**John Holmfeld**

Science Policy Consultant  
House Committee on Science and Astronautics

**Phillip Johnson**

RANN Program  
National Science Foundation

**Raphael Kasper**

Program of Policy Studies in Science and Technology, GWU

**Erasmus Kloran**

National Academy of Public Administration

**Genevieve Knezo**

Science Policy Research Division  
Library of Congress

**Donald J. Kryszakowski**

Graduate Student, GWU

**David Lakamp**

Science Information Exchange

**Robert Lamson**

RANN Program  
National Science Foundation

**Carolyn Landis**  
EDUCOM  
Princeton, New Jersey

**Hugh Leblanc**  
Department of Political Science, GWU

**Leonard Lederman**  
Director  
National R&D Assessment Program  
National Science Foundation

**Edward Lehan**  
Office of Intergovernmental Science Programs  
National Science Foundation

**Arnold Leibowitz**  
Office of Technical Assistance  
Economic Development Administration  
U.S. Department of Commerce

**Will Lepkowski**  
McGraw-Hill Publications

**Roger Levien**  
Director  
Washington Domestic Programs  
The RAND Corporation

**Jordan Lewis**  
Director  
Applied Technology  
Battelle Memorial Institute

**Harold Liebowitz**  
Dean  
School of Engineering and Applied Sciences, GWU

**Basil Littin**  
Director of Public Affairs  
U.S. Department of Commerce

**John M. Logsdon**  
Director  
Graduate Program in Science, Technology and  
Public Policy, GWU

**Hugh Loweth**  
Office of Management and Budget  
Executive Office of the President

**C. Ronald Lowry**  
Vice President  
Aerospace Industries Association of America, Inc.

**Hylan Lyon**  
Bureau of International Scientific and Technological Affairs  
U.S. Department of State

**Alan McAdams**  
School of Business Administration  
Cornell University

**William McGlashan**  
Special Assistant to George Shultz

**Kay McKeough**  
Graduate Student, GWU

**Robert McKibben**  
Office of Policy Development  
U.S. Department of Commerce

**Louis Mayo**  
Director  
Program of Policy Studies in Science and Technology, GWU

**Michael Miller**  
U.S. Department of Transportation

**Thomas Mills**  
Science Resource Studies  
National Science Foundation

**Mary Ellen Mogee**  
National R&D Assessment Program  
National Science Foundation

**Ellis Mottur**  
Office of Senator Edward M. Kennedy  
U.S. Senate

**Robert Multauf**  
Senior Scientific Scholar  
The Smithsonian Institution

**Edward Murphy**  
Electronics Industry Association

**Micah Naftalin**  
Committee on Public Engineering Policy  
National Academy of Engineering

**Jack Nargil**  
Graduate Student, GWU

**Henry Nau**  
Department of Political Science, GWU

**Paul O'Day**  
Deputy Director  
Bureau of Competitive Assessment and Business Policy  
U.S. Department of Commerce

**Harold Orlans**  
The Brookings Institution

**Sidney Passman**  
Science Policy Research Section  
National Science Foundation

**Andrew Pettifor**  
National R&D Assessment Program  
National Science Foundation

**Rolf Piekarz**  
National R&D Assessment Program  
National Science Foundation

**Arthur Reetz**  
NASA

**Robert Richard**  
Office of Congressman John Davis  
U.S. House of Representatives

**David Roessner**  
National R&D Assessment Program  
National Science Foundation

**Thomas Rogers**  
Consultant

**Hal Rubin**  
Technology Advancement  
General Accounting Office

**Charles Ruttenberg**  
School of Government and Public Administration  
American University

**Burton M. Sapin**  
Dean  
School of Public and International Affairs, GWU

**Dennis Schiffel**  
National R&D Assessment Program  
National Science Foundation

**Charles Sheldon**  
Chief  
Science Policy Research Division  
Library of Congress

**Nozar Singpurwalla**  
Department of Operations Research, GWU

**Alan Skaggs**  
Aerospace Industries Association

**Joel Snow**  
Deputy Assistant Director for Research Applications  
National Science Foundation

**Donald H. Steininger**  
Deputy Director  
Science and Technology  
Central Intelligence Agency

**David Sternlight**  
Deputy Director  
Office of Policy Development  
U.S. Department of Commerce

**Guyford Stever**

Director  
National Science Foundation

**Charles Stewart**

Department of Economics, GWU

**Jeremy J. Stone**

Director  
Federation of American Scientists

**Ted Suranyi-Unger**

Department of Economics, GWU

**Albert Teich**

Policy Institute  
Syracuse University Research Corporation

**Wesley Tennant**

Program of Policy Studies in Science and Technology, GWU

**Michael Terpak**

Voice of America  
United States Information Agency

**Terrance Troy**

Experimental Technology Incentives Program  
National Bureau of Standards

**Mark Tucker**

R&D System Task Force  
National Institute of Education

**Thomas Ubois**

National R&D Assessment Program  
National Science Foundation

**David Wald**

Graduate Student, GWU

**Raymond J. Waldmann**

Staff Assistant to the President  
Domestic Council

**June Wing**

Graduate Student, GWU

**Linda Yelton**

Program of Policy Studies and Technology, GWU

**James Zwolenik**

Science Resource Studies  
National Science Foundation

19. Seminar Series on  
**TECHNOLOGY AND PUBLIC POLICY**

Coordinator: Vary T. Coates

Papers were presented as follows:

**1. Technology and Public Policy: Highlights of the Report**

November 29, 1972—Vary T. Coates  
Senior Staff Scientist  
Program of Policy Studies, GWU

Reply to remarks: Jerry D. Ward  
Director  
Office of R&D Policy  
Systems Development and Technology  
Department of Transportation

**2. Technology Assessment in Transportation**

January 18, 1973—Joseph Coates  
Program Manager  
Office of Exploratory Research and Problem Assessment  
National Science Foundation  
and Steven Maimon  
Technical Planner  
Office of Technical Planning and Financial Analysis  
U.S. Post Office Department

**3. Toward a National Energy Policy**

February 27, 1973—Monte Canfield  
Deputy Director  
Ford Foundation Energy Policy Project

**Participants:**

**James Akin**

Director  
Office of Fuels and Energy  
U.S. Department of State

**Betsy Amin-Arsala**

Research Associate  
Program of Policy Studies, GWU

**Robert Anthony**

Science Liaison  
Bendix Aerospace Division

**Holt Ashley**

Director  
Office of Exploratory Research and Problem Assessment  
National Science Foundation

**Richard Baker**

Advanced Material Concepts Agency  
U.S. Department of Defense

**Arthur J. Balek**

Community Effects Staff  
Office of Program and Policy Planning  
Federal Highway Administration  
U.S. Department of Transportation

**Gerald O. Barney**

Staff Member  
Council on Environmental Quality

**Bodo Bartocha**

Office of National and International Programs  
National Science Foundation

**Douglas C. Bauer**

White House Fellow  
Special Assistant to Secretary of Transportation Volpe

**David Beckler**

Executive Assistant to the Director of Science and Technology  
Executive Office of the President

**James M. Beggs**

Under Secretary of Transportation  
U.S. Department of Transportation

**Charles M. Billingsley**

Program Analysis and Control  
Office of Research and Development  
Federal Highway Administration

**Guy Black**

Senior Staff Scientist, Program of Policy Studies, GWU

**Fred Bowen**

Executive Assistant to Deputy Associate Administrator, A.S.T.  
NASA

**Steven Carhart**

Ford Foundation Energy Policy Project

**John Carrell**

Office of Environmental Review  
U.S. Department of the Interior

**Robert J. Catlin**

Division of Environmental Affairs  
Atomic Energy Commission

**Hang-Sheng Cheng**

International Economist  
U.S. Department of the Treasury

**George Cherry**

Deputy Associate Administrator, A.S.T.  
NASA

**Joseph F. Coates**

Program Manager  
Exploratory Research and Problem Assessment  
National Science Foundation

**Vary T. Coates**

Research Scientist  
Program of Policy Studies, GWU

**Harry I. Cohen**

Plans Evaluation Division  
U.S. Coast Guard  
U.S. Department of Transportation

**Ernest L. Corley**

Program Analysis and Coordination  
U.S. Department of Agriculture

**Henry Coulter**

Geological Survey  
U.S. Department of the Interior

**Fred Cutler**

National Economist  
U.S. Department of the Treasury

**Beatrice Dane**

Consumer Affairs and Public Information  
National Highway Traffic Safety Administration

**Diane D. Davenny**

Science and Technical Adviser  
Office of Congressman Brock Adams

**Velmar Davis**

Assistant to Administrator for Environmental Coordination  
Economics Research Service  
U.S. Department of Agriculture

**Paul Dembling**

General Counsel  
General Accounting Office

**Harold Denton**

Assistant to the Director for Site Safety  
Atomic Energy Commission

**Stanley Dolins**

Division of Science Resources Studies  
National Science Foundation

**Steven Ebbin**

Senior Staff Scientist  
Program of Policy Studies, GWU

**Alfred J. Eggers, Jr.**

Assistant Director for Research Applications  
National Science Foundation

**John Farrell**

Office of Environmental Review  
U.S. Department of the Interior

**John Fedwik**

Deputy Director  
Office of Planning and Evaluation  
U.S. Department of Agriculture

**Scott Fleming**

Office of Assistant Secretary for Health  
U.S. Department of Health, Education, and Welfare

**Leroy Furlong**

New Energy Technologies  
Office of Science Advisor  
U.S. Department of the Interior

**Kenneth Gayer**

Deputy Director  
Office of Exploratory Research and Environmental  
Assessment  
National Science Foundation

**David Gendell**

Office of Highway Planning  
Federal Highway Administration

**Jack Goldberg**

Associate Administrator for Policy and Programming  
U.S. Department of Transportation

**William I. Goodman**

Director  
Urban Transportation Systems  
Office of Assistant Secretary for Environment and  
Urban Systems  
U.S. Department of Transportation

**Winifred Griffin**

Congressional Research Service  
Library of Congress

**James Gross**

Office of Research and Ship Development  
Maritime Administration  
U.S. Department of Commerce

**Wilford Grover**

Water Resources Council

**James A. Hagen**

Associate Administrator for Policy and Plans  
U.S. Department of Transportation

**Walter Hahn**

Science Policy Division  
Congressional Research Service  
Library of Congress

**Harry H. Hersey**

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Leasing Branch  
Bureau of Land Management  
U.S. Department of the Interior

**Dan Zwick**

Office of the Assistant Secretary for Health  
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20. Fellowship Program Seminars on  
**ISSUES AND CONCERNS IN CAREER EDUCATION**

Series Coordinator: Ann B. Finkelstein

Papers were presented as follows:

**1. Career Education and Minority Groups**

- a) February 8, 1973—Rhody McCoy (Speaker)  
Director  
Center for the Study of Educational Innovations  
University of Massachusetts  
Rudolph Bryant (Fellow)  
Assistant Director  
Pratt Institute Center for Community and Environmental Development
- b) March 8, 1973—Rudolph Bryant (Speaker)  
Assistant Director  
Pratt Institute Center for Community and Environmental Development  
Fellow in "Issues and Concerns in Career Education"

**2. Career Education and Employers**

- a) March 19, 1973—Charles Bowen (Speaker)  
Chairman of the National Committee for Support of Public Schools
- b) April 19, 1973—Ron Hicks (Speaker)  
Staff Assistant  
Urban Affairs Department  
Dallas Chamber of Commerce  
Fellow in "Issues and Concerns in Career Education"

**3. Career Education and Labor Unions**

- a) April 30, 1973—Gus Tyler (Speaker)  
Assistant President  
International Ladies Garment Workers Union  
Albert Lorente (Fellow)  
United Automobile Workers of America
- b) May 30, 1973—Albert Lorente (Speaker)  
Administrative Coordinator of Project Outreach  
United Automobile Workers of America  
Fellow in "Issues and Concerns in Career Education"

**4. Career Education and Higher Education**

- June 21, 1973—*Panelists:*  
Stephen Bailey  
Vice President  
American Council on Education  
David Bushnell  
Human Resources Research Organization  
Stephen Plumer  
Dean of Developing Programs  
Antioch College

**Participants:**

Sheppie Abramowitz

Director

Washington Office  
University of Cincinnati

Delbert Allen

Business Manager

Local 77

International Union of Operating Engineers

George Arnstein

The Brookings Institution

Sherri Arnstein

A. D. Little, Inc.

Helen S. Astin

Director of Research  
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**Donald Barnes**

Vice President  
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**Mary Bigley**

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American Association of State Colleges and Universities

**Alvah Borman**

Assistant Dean for Cooperative Education  
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**Charles Bowen**

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National Committee for Support of the Public Schools

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School of Labor and Industrial Relations  
Michigan State University

**Jonathan Brown**

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American Newspaper Guild

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Dual Enrollment Program  
International Union of Operating Engineers

**Paul Collins**

American Personnel and Guidance Association

**Lloyd Cooke**

Director  
Urban Affairs  
Union Carbide Corporation

**Martin Cooley**

Program Executive for Education  
National Association of Manufacturers

**Olga Corey**

Director  
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**Kathryn Crockett**

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**Richard A. Graham**

Former Director  
Education Programs  
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**Glendis Hambrick**

Chairman  
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American Federation of Teachers

**Martin Hamburger**

Dean  
New York University

**Reese Hammond**

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# Publications, Reports, Books

## Program Publications

The publications listed herein have grown out of the Program's research from the Fall of 1966 through October 1973. The Program publishes four *groups* of documents: Monographs (Mon), Occasional Papers (OP), Reprints (R), and Staff Discussion Papers (SDP). Staff Discussion Papers fall in four series:

- 100 series—Urban
- 200 series—Technology Assessment
- 300 series—Economic Aspects of R&D
- 400 series—Institutional Responses to Advancing Technology

### HOW TO ORDER

A few complimentary copies of the most recent publications are available from the Program upon request. These items are starred. Xerox copies of Reprints and other out-of-print, otherwise unavailable Program papers may be ordered from Mrs. Annette Steiner, Special Collections Section, The George Washington University Library, Washington, D. C. 20006 (10¢/page + about 50¢ postage and handling). Such requests to Mrs. Steiner must be accompanied by your check in the required amount, payable to The George Washington University.

Program Series papers (except Reprints which may only be ordered from Mrs. Steiner) may be ordered from the *National Technical Information Service*, 5285 Port Royal Road, Springfield, Va. 22151 (microfiche—\$1.45, paper copies—\$3.00 or as listed) stating title, author and PB or N number of the document requested. All orders should be sent to NTIS accompanied by payment in the form of a check, money order or NTIS coupon.

#### **Advocacy in Technology Assessment.**

Ernest M. Jones. (Nov. 70) GWPS-SDP 209;  
80 pp. PB 196-635.

#### **Apollo Decision and Its Lessons for Policy Makers.**

John M. LOGSDON. (Jan. 70) GWPS-OP 7;  
38 pp. N70-23324.

#### **Broadcast Satellites: Their Potential Use for Educational Purposes, and their Relationship to International Understanding and Cooperation.**

John HANESSIAN, Jr. and Joseph B. MARGOLIN  
(July 69) 21 pp. GWPS-OP 3;  
PB 192-549.

#### **"Business Gigantism and 'Technological Imperatives'."**

Arthur S. MILLER. From the *Journal of Public Law*,  
Vol. 18, #3, Fall 1969. Reprint #6  
(Fall 69) 55 pp.

#### **Congressional Debate on the Social Sciences.**

Dennis W. BREZINA. (Dec. 68) GWPS-SDP 400;  
22 pp. PB 192-556.

#### **\*Consideration of Environmental Noise Effects in Transportation Planning by Governmental Entities.**

Louis H. MAYO. (Dec. 72) GWPS-OP 15;  
58 pp. N73-72515.  
(Revision of remarks prepared for TRANSPO '72  
*International Conference on Transportation and the Environment*, Session #7 on "Noise as a  
National Problem" held 5/31/72, Wash. D. C.)

**Contextual Approach to Technology Assessment: Implications for "One Factor Fix" Solutions to Complex Social Problems.**

Louis H. MAYO. (April 71) GWPS-MON 9;  
92 pp. PB 199-162.

**Control of Incinerator-Caused Air Pollution in New York City: 1946-1965.**

Richard MYRICK and Barbara S. MARX.  
(March 68) 65 pp. \$6.00 GWPS-SDP 202;  
PB 182-874.

**"Controlling the Potential Hazards of Government-Sponsored Technology."**

Michael J. WOLLAN. From *The George Washington University Law Review*, Vol. 36, #6, July 1968.  
Reprint #2  
(Nov. 68) 36 pp.

**Conversion of Scientific and Technical Resources: Economic Challenge—Social Opportunity.**

Ellis R. MOTTUR. (March 71) GWPS-MON 8;  
209 pp. COM 71-00605.

**Decentralization of Urban Government: A Systems Approach.**

Guy BLACK. (Aug. 68) 32 pp. GWPS-SDP 102;  
\$6.00 PB 182-870.

**\*Design Evaluation in Technology Assessment.**

John F. HALLDANE. (May 72) GWPS-MON 12;  
50 pp. \$4.75 N72-28970.

**Early Experiences with the Hazards of Medical Use of X-Rays: 1896-1906—A Technology Assessment Case Study.**

Barbara S. MARX. (Fall 68) GWPS-SDP 205;  
75 pp. \$6.00 PB 182-877.

**\*"Earth Resource Surveys: An International Framework Begins to Develop."**

John M. LOGSDON and John HANESSIAN, Jr.  
From *Astronautics and Aeronautics*, September 1971.  
Reprint #14  
(Oct. 71) 6 pp.

**\*"Earth Resources Technology Satellite: Securing International Participation."**

John HANESSIAN, Jr. and John M. LOGSDON.  
From *Astronautics and Aeronautics*, August 1970.  
Reprint #10  
(Sept. 70) 8 pp.

**"Effect of Government Funding on Commercial R & D."**

Guy BLACK. From *Factors in the Transfer of Technology*, Gruber & Marquis (ed.), M.I.T. Press, 1969.  
Reprint #9  
(July 70) 16 pp.

**Energy, Air Quality and the Systems Approach.**

Guy BLACK. (July 70) 93 pp. GWPS-SDP 104;  
PB 195-797.

**\*Evaluation of Social Justice Outcomes of Anticipatory Project Assessments: A Succession of "Hypothetical Judgments."**

Louis H. MAYO. (Oct. 73) GWPS-MON 16;  
30 pp. N74-\_\_\_\_\_  
(Prepared for presentation at the Second International Conference on Unity of the Sciences, Tokyo, Japan, Nov. 18-21, 1973 under sponsorship of the International Cultural Foundation.)

**Examples of Technology Assessments for the Federal Government.**

Vary T. COATES. (Jan. 70) GWPS-SDP 208;  
48 pp. PB 192-555.

**Expanding Roles of Non-Profit Organizations as Contractors with Government: Some Research Needs.**

Clarence H. DANHOFF. (Mar. 68) GWPS-SDP 301;  
19 pp. PB 182-879.

**Federal Government and the Current Development of Technology Assessment.**

Vary T. COATES. (June 71) GWPS-OP 11;  
12 pp. PB 201-470.

**\*Federal Support of Civilian Technology: Theory versus Practice.**

George EADS. (March 73) GWPS-OP 16;  
24 pp. N73-72514.

**Financial Variables Associated with R & D Expenditures by Industry.**

Guy BLACK. (Jan. 68) 12 pp. GWPS-SDP 300;  
PB 182-878.

**Forecasting in International Relations.**

Stuart GREENBERG. (June 70) GWPS-SDP 407;  
29 pp. PB 192-563.

**\*Generating Social Impact Scenarios: A Key Step in Making Technology Assessment Studies.**

Martin V. JONES. (April 72) GWPS-MON 11;  
20 pp. \$3.25 N72-24978.

**\*Genetic Engineering.**

Dan S. MURRELL. (61 pp.) and

**\*Cyclamates.**

Robert B. STENSTROM. (87 pp.) April 71. Two selected student papers from a course, "Science and the Legal Process" at the National Law Center of The George Washington University, Spring term 1970. Available only from the Program of Policy Studies.

**\*Genetic Technology: Promises and Problems.**

Mark S. FRANKEL. (March 73) GWPS-MON 15;  
104 pp. N73-72427.

**Highlights from the Literature on Organization for Federal Programs in Science and Technology.**

Fred R. BROWN and Stephen R. CHITWOOD.  
(July 68) 140 pp. \$6.00 GWPS-MON 2;  
PB 182-603.

**Historical Aspects of Technology Assessment.**

Melvin KRANZBERG. (Aug. 69) GWPS-OP 4;  
23 pp. PB 192-550.

**"Impact of Cybernetic Information Technology on Management Value Systems."**

Richard F. ERICSON. From *Management Science*, Vol. 16, #2, October 1969.  
Reprint #5  
(Oct. 69) 24 pp.

**Influence of Insurance on Technological Development.**

Gordon B. FIELDS (Nov. 69) GWPS-SDP 405;  
38 pp. PB 192-561.

**"International Aspects of Earth Resources Survey Satellite Programs."**

John HANESSIAN, Jr. From *The Journal of the British Interplanetary Society*, Vol. 23, Spring 1970.  
Reprint #8  
(June 70) 22 pp.

**\*Law's Interface with Expanding Technology.**

Harold P. GREEN. (Aug. 72) GWPS-OP 13;  
12 pp. (CR-129270);  
N73-12987.

**"National Economic Conversion: Congressional Proposals and Prospective Action."**

Ellis R. MOTTUR. From *Proceedings of the Midwest Regional Conference on Science, Technology, and State Governments: Achieving Environmental Quality in a Developing Economy*, held 17-19 November, 1970, Chicago, Illinois.  
Reprint #12  
(Jan. 71) 13 pp.

**New Technological Era: A View from the Law.**

Harold P. GREEN. (Jan. 68) GWPS-MON 1;  
9 pp. PB 182-868.

**\*On the Cost of Engineering Education.**

Guy BLACK. (Nov. 70) 174 pp. GWPS-MON 7;  
PB 196-639.

**Organizational Cybernetics and Human Values.**

Richard F. ERICSON. (Sept. 69) GWPS-MON 4;  
31 pp. PB 192-545.

**\*Planning and Programming in the Soil Conservation Service.**

Roy M. GRAY. (June 72) GWPS-MON 13;  
27 pp. \$3.50 N72-28347.

**"Policy Analysis Role of the Contemporary University."**

Richard F. ERICSON. From *Policy Sciences*, December 1970.  
Reprint #11  
(Jan. 71) 15 pp.

**Probing the Law and Beyond: A Quest for Public Protection from Hazardous Product Catastrophes.**

James M. BROWN. (July 69) GWPS-SDP 402;  
64 pp. PB 192-558  
[Became Reprint #7]

**"Probing the Law and Beyond: A Quest for Public Protection from Hazardous Product Catastrophes."**

James M. BROWN. From *The George Washington University Law Review*, Vol. 38, #3, March 1970.  
Reprint #7  
(April 70) 36 pp.

**Process of Setting Safety Standards in the Courts, Congress and Administrative Agencies.**

Michael J. WOLLAN. (Feb. 68) GWPS-SDP 204;  
126 pp. \$6.00 PB 182-876.

**Promising Approaches Toward Understanding Technology Transfer.**

James E. MAHONEY. (Dec. 67) GWPS-SDP 201;  
10 pp. PB 182-873.

**Public Health Service Guidelines Governing Research Involving Human Subjects: An Analysis of the Policy-Making Process.**

Mark S. FRANKEL. (Feb. 72) GWPS-MON 10;  
65 pp. \$5.50 N72-24093.

**Public Policy for Genetic Manipulation: A View from the Law.**

Harold P. GREEN. (March 69) GWPS-OP 1;  
16 pp. PB 192-547.

**"Relationship of Technology Assessment to 'Balanced Social Growth'."**

Louis H. MAYO. From *Harmonizing Technological Developments and Social Policy in America*, Monograph No. 11 of the American Academy of Political and Social Science, and delivered at their meeting in December 1970, Philadelphia, Pa.  
Reprint #13  
(May 71) 20 pp.

**Relationship of Technology Assessment to Environmental Management.**

Louis H. MAYO. (Oct. 69) GWPS-SDP 206;  
30 pp. PB 192-554.

**Rise and Demise of the Senate Subcommittee on Government Research.**

Dennis W. BREZINA. (Nov. 69) GWPS-SDP 406;  
31 pp. PB 192-562.

**Role of Crusader-Triggered Controversy in Technology Assessment: An Analysis of the Mass Media Response to "Silent Spring" and "Unsafe at Any Speed."**

Dennis W. BREZINA. (April 68) GWPS-SDP 203;  
42 pp. \$6.00 PB 182-875.

**"Safety Determinations in Nuclear Power Licensing: A Critical View."**

Harold P. GREEN. From the *Notre Dame Lawyer*, Vol. 43, #5, June 1968.  
Reprint #1  
(Aug. 68) 24 pp.

**Science & Technology in the Theories of Social and Political Alienation.**

Edward CHASZAR. (June 69) GWPS-SDP 401;  
72 pp. PB 192-557.

**Science Policy and Public Affairs in Europe.**

Jean-Jacques SALOMON. GWPS-OP 2;  
(Dec. 68) 28 pp. PB 192-548.

**Scientific Method, Adversarial System, and Technology Assessment.**

Louis H. MAYO. (Nov. 70) GWPS-MON 5;  
114 pp. PB 196-638.

**Social Change in the American Value System.**

Seymour M. LIPSET. [Proceedings of a Seminar]  
John P. ROCHE, critique; Clarence C. MONDALE, Moderator and Editor. GWPS-MON 3.  
(Nov. 67) 76 pp.

**Social Impact Analysis: 1970.**

Louis H. MAYO. (March 71) GWPS-SDP 210;  
49 pp. PB 199-163.

**Social Impact Evaluation: Some Implications of the Specific Decisional Context Approach for Anticipatory Project Assessment with Special Reference to Available Alternatives and to Techniques of Evaluating the Social Impacts of the Anticipated Effects of Such Alternatives.**

Louis H. MAYO. (Nov. 72) GWPS-OP 14;  
56 pp. \$4.75 N73-14968.

**Some Comments on Technology Assessment and the Environment.**

Raphael G. KASPER. (Nov. 70) GWPS-OP 8;  
13 pp. PB 196-640.

**Some Effects of Federal Procurement of Research and Development on Industry.**

Guy BLACK. (July 68) GWPS-SDP 302;  
70 pp. \$6.00 PB 182-880.



**Some Implications of the Technology Assessment Function for the Effective Public Decision-Making Process.**

Louis H. MAYO. (May 71) GWPS-OP 12;  
30 pp. PB 201-049.

**Some Issues in Preparing Science Administration Leadership for Tomorrow.**

Dwight WALDO. (Dec. 69) GWPS-OP 6;  
23 pp. PB 192-551.

**Some Legal, Jurisdictional, and Operational Implications of a Congressional Technology Assessment Component.**

Louis H. MAYO. (Dec. 69) GWPS-SDP 207;  
59 pp. N70-26454.

**Some Research Approaches to Studying the Development and Functioning of Technology Assessment-Control Processes.**

Richard MYRICK and Barbara S. MARX. (Fall 67)  
30 pp. \$6.00 GWPS-SDP 200;  
PB 182-872.

**Space Program and the Urban Problem: Case Studies of the Components of National Consensus.**

John V. MOESER. (Spring 69) GWPS-SDP 404;  
48 pp. PB 192-560.

**Systems Approach and the Urban Dilemma.**

Robert G. SMITH. (July 68) GWPS-SDP 101;  
49 pp. \$6.00 PB 182-869.

**Systems Approaches to Multi-Variable Socio-Economic Problems: An Appraisal.**

Ernest M. JONES. (Aug. 68) GWPS-SDP 103;  
70 pp. PB 182-871.  
[Became Reprint #4] \$6.00

**"Systems Approaches to Socio-Economic Problems Confronting Governments: An Appraisal."**

Ernest M. JONES. From the *Journal of Public Law*,  
Vol. 18, #1, June 1969. Reprint #4  
(June 69) 60 pp.

**Technology Assessment and Citizen Action.**

Ellis R. MOTTUR. (March 71) GWPS-OP 10;  
26 pp. PB 199-161.

**Technology Assessment and Environmental Engineering.**

Ellis R. MOTTUR. (Jan. 71) GWPS-OP 9;  
19 pp. PB 197-687.

**Technology Assessment of Space Stations.**

Vary T. COATES. (May 71) GWPS-SDP 212;  
65 pp. PB 201-073.

**Technology Assessment: What Should It Be?**

Guy BLACK. (June 71) 54 pp. GWPS-SDP 211;  
PB 201-471.

**\*Technology, the Evolution of the Transnational Corporation, and the Nation-State: A Speculative Essay.**

Arthur S. MILLER. (Oct. 72) GWPS-MON 14;  
72 pp. \$6.00 N73-12988.

**Technology Transfer by People Transfer.**

Clarence H. DANHOF. (Aug. 69) GWPS-SDP 403;  
20 pp. PB 192-559.

**"Toward the 'Techno-Corporate' State: An Essay in American Constitutionalism."**

Arthur S. MILLER. From the *Villanova Law Review*,  
Vol. 14, #1, Fall 1968. Reprint #3  
(Dec. 68) 73 pp.

**\*Toward a New Federal Policy for Technology: The Outline Emerges.**

John M. LOGSDON. (Aug. 72) GWPS-SDP 408;  
30 pp. \$3.75 N73-13987.

**\*U.S. Technology: Trends and Policy Issues.**

Michael BORETSKY. (Oct. 73) GWPS-MON 17;  
175 pp. N73-\_\_\_\_\_

**Urban Development Modeling.**

George C. HEMMENS. GWPS-MON 6;  
(April 70) 38 pp. PB 192-546.

**What's Happening to Small Business Research and Development?**

Guy BLACK. (May 71) 17 pp. GWPS-SDP 303;  
PB 201-074.

PUBLICATIONS OF  
THE NATIONAL ADVISORY COUNCIL ON  
SUPPLEMENTARY CENTERS AND SERVICES

Since 1972 the Council has prepared and published a *Quarterly* in magazine format. While still available, a complimentary copy of these publications, listed below, may be requested from the National Advisory Council on Supplementary Centers and Services, 425 Thirteenth St. N.W., Suite 529, Washington, D. C. 20004. Copies are accessible for reading or for ordering xerox copies (10¢/page + 50¢ postage and handling) at the Special Collections Section, George Washington University Library, Washington, D. C. 20006. Such requests must be accompanied by your check in the required amount payable to The George Washington University.

1972 January **Title III in Special Education**  
tells the story of Title III's contribution to special education and includes a listing of Title III special education projects. (35 pp.)

April **"Title III in Environmental Education"**  
This publication reviewed a number of Title III projects in this curriculum area and listed all projects operating throughout the country. In this new curriculum field, the publication is one of the first to describe how environmental education may actually be implemented at the elementary and secondary levels, and it has had wide circulation among educators and environmentalists. (34 pp.)

July **"Title III in Preschool Education"**  
This issue of the *Quarterly* described in detail and in summary a number of projects in this field and listed all programs currently in existence under Title III. (34 pp.)

October **"Title III and the World of Work"**  
This *Quarterly* reviewed and listed Title III projects in vocational and career education. (34 pp.)

1973 January **"Title III in Guidance and Counseling"**  
This publication brought together information about Title III guidance projects. It also represents one of the first efforts in the field to describe the operation of guidance and counseling programs actually operating in schools. (44 pp.)

April **"Title III and Changing Educational Designs"**  
This issue of the *Quarterly* describes Title III projects which have implications for long-term and comprehensive changes in educational practices. (51 pp.)

July **Title III and Cultural Diversity**  
deals with projects in bilingual education, cultural awareness, and ethnic studies. (36 pp.)

The Fall, 1973 issue reviews Title III projects in educational administration and management. The Winter, 1973 issue reviews Title III in the Arts.

Also distributed by the Council is a monthly newsletter designed to inform the Title III community of national developments affecting education and of the activities of Title III projects and state administrators.

## Books and Project Reports

Listed here are Books written by staff members and published, and Project Reports (published and unpublished). At least one copy of the Final Report of each project is accessible for reading in the library of the Program, as well as in the Special Collections Section of the main University library. However, no copies are available for distribution. Sometimes copies of these reports are available from the sponsoring agency, and when possible, reference numbers for them are cited.

### **A Critical Review of the Marine Science Commission Report, 1969.**

Thomas CLINGAN (ed.). A report. 144 pages. Available from Marine Technology Law Society, 1730 M St., N.W., Washington, D. C.

### **A National Criminal Justice Reference Service.**

James E. MAHONEY and David WEEKS. A report. January 1971, 36 pages. Prepared for the Law Enforcement Assistance Administration, Department of Justice, Washington, D. C. The model for an information reference system recommended in this report was the basis for a system which is now national in scope and which is broadening into international application.

### **A Workbook on Alternative Future Life Styles Related to Energy Demand.**

Vary T. COATES. A report. August 1973, 192 pages. Prepared for the Ford Foundation Energy Policy Project.

### **An Integrated Strategy for Aircraft/Airport Noise Abatement.**

Louis H. MAYO. A report. September 1973, 264 pages. A Legal/Institutional Analysis of Section 7 of the Noise Control Act of 1972 and proposals based thereon. Prepared for the Environmental Protection Agency, Office of Noise Control Programs.

### **Analysis of the Need For and Feasibility of More Effective Distribution of Government-Supported Non-Written Material.**

Joseph B. MARGOLIN and Educational Policy Group. A report. April 1970. Prepared for the U.S. Office of Education, this report was used as a basis for a book entitled "The Dissemination of Audio-Visual Materials: A Study of the Systems that Supply our Schools." The writing of the book is supported by a grant from the Ford Foundation. Publication is expected in 1974.

### **Application of Systems Analysis to Government Operations.**

Guy BLACK. New York: Frederick A. Praeger, 1968, 186 pages (\$15). Library of Congress No. 68-18914. A book clarifying in a very short space a large number of difficult concepts and ideas surrounding the application of systems analysis.

### **Candidates and Priorities for Technology Assessments: A Survey of Federal Executive Agency Professionals.**

Howard C. REESE with Peter R. Bankson, George E. HUMPHRIES, and Ben F. Sands, Jr. A report. July 1973, 119 pages. A survey by questionnaires

and interviews of middle-to-upper-level Federal officials to determine technological developments in need of technology assessment. Data from both modes resulted in 457 nominees and 367 candidates for technology assessment. Prepared for the National Science Foundation (RANN/ERPA).

### **Citizen Group Uses of Scientific and Technological Information in Nuclear Power Cases.**

Steven EBBIN and Raphael KASPER. A report. August 1973, 2 volumes, 343 pages. Prepared for the National Science Foundation. This report was used as a basis for a book, "Citizen Groups and the Nuclear Power Controversy: Uses of Scientific and Technological Information" being published by MIT Press in January 1974.

### **Computers in the Classroom: An Interdisciplinary View of Trends and Alternatives.**

Joseph B. MARGOLIN and Marion R. MISCH (editors). New York: Spartan Books, 1970. (\$14). A book concerning future computer uses in elementary and secondary education, this book is based on a report prepared for the U.S. Office of Education in the Autumn of 1967 entitled "Education in the 70's" (see below).

### **Decision to Go to the Moon: Project APOLLO and the National Interest.**

John M. LOGSDON. Cambridge, Mass.: M.I.T. Press, 1970. LC 73-110230. A political scientist examines the influence of men and events on the decision-making process. A thorough historical record of this event.

### **Dissemination of Audio-Visual Materials: A Study of the Systems that Supply our Schools.**

Joseph B. MARGOLIN and the Educational Policy Group. A book to be published in 1974, the writing of which is supported by a grant from the Ford Foundation. It is based on a report prepared for the U.S. Office of Education in April 1970 entitled "Analysis of the Need For and Feasibility of More Effective Distribution of Government-Supported Non-Written Material."

### **Education in the 70's.**

Joseph B. MARGOLIN and Marion R. MISCH. A report. Autumn 1967. Prepared for the U.S. Office of Education, this report was used as a basis for a book published by Spartan Books, New York in 1970 entitled "Computers in the Classroom: An Interdisciplinary View of Trends and Alternatives."

### **Effect of Changing Patterns and Levels of Federal Research and Development Funding on Industry.**

Guy BLACK. A report. July 1973, 448 pages.

Prepared for the National Science Foundation, Industry Studies Group.

**Effects of Limited-Access Highways on Nearby Churches.**

Joel GARNER with Joseph L. TROPEA. A report. October 1971, 25 pages. Prepared for the Federal Highway Administration.

**Evaluative Jurisprudence: The Role of Legal System in the Maintenance of Control over the Direction and Rate of Value-Institutional Change in Modern Technological Society.**

Louis H. MAYO. September 1972, 400 pages. Experimental Class Materials for use in the GWU National Law Center Course on Jurisprudence. Revised September 1973, 300 pages.

**Evaluative Mechanisms for the Public Experimental Program of the National Endowment for the Humanities.**

Guy BLACK and James E. MAHONEY. A report. September 1969, 3 large volumes. Prepared for the National Endowment for the Humanities, Washington, D. C.

**Federal Contributions to Management: Effects on the Public and Private Sectors.**

David S. BROWN (editor). New York: Praeger Publishers, 1971, 405 pages. This book was based on papers presented before a series of seminars on "Federal Contributions to Management" sponsored by the Program of Policy Studies in Science & Technology during the Spring and Fall of 1968.

**Homeowner's Title Registration Corporation: A Program to Reduce the Land-Related Costs of Housing.**

James M. BROWN. A report. February 1972, 4 volumes, 900 pages. Prepared for the Office of Economic and Market Analysis, Department of Housing and Urban Development, Washington, D. C.

**Innovation Information and Analysis Project.**

Wesley L. TENNANT. First Quarterly Report. July 1973. Prepared for the National Science Foundation, National Research and Development Assessment Program (RDA).

**International Participation in an Experimental Earth Resources Survey Satellite Program.**

John HANESSIAN, Jr. and John M. LOGSDON. A report. April 1970, 114 pages. Prepared for the Office of International Affairs, NASA.

**Inventory and Appraisal of George Washington University Activities in Urban Social/Minority Group Problem Areas.**

Program of Policy Studies in Science & Technology. A report. May 1968, 70 pages. Prepared for the President of The George Washington University.

**Laws and Regulatory Schemes for Noise Abatement.**

Louis H. MAYO. A report. December 1971, 638 pages. (\$9). Prepared for the Office of Noise Abatement and Control, Environmental Protection Agency, Washington, D. C. EPA Report #NTID 300.4; available from NTIS as PB 206-719.

**Legal, Economic, and Technical Aspects of Liability and Financial Responsibility as Related to Oil Pollution, Volume II: Study.**

Erling ROSHOLDT. A report. December 1970, 347 pages. Prepared for the U.S. Coast Guard, Washington, D. C. Available from NTIS as PB 198-176. [Vol. I, "Oil Pollution Liability and Financial Responsibility: Report." December, 1970, was prepared by the U.S. Coast Guard. 25 pages.]

**Political Economy of the Space Program.**

Mary A. HOLMAN. Palo Alto, California: Pacific Books, 1973 (still in press).

**Processes of Technological Innovation: A Conceptual Systems Model.**

Ellis R. MOTTUR. A report. January 1968, 297 pages. Prepared for the National Bureau of Standards Office of Invention & Innovation and the Arms Control & Disarmament Agency, this report covers the first phase of the Technological Innovation Policy Project. Internal Reference No. NBS 9689. [The final report, "Technological Innovation for Civilian, Social purposes," was submitted in July 1971. (553 pages)].

**Revitalization of Small Communities: Transportation Options.**

Vary T. COATES. First Phase Report. July 1973, 2 volumes, 240 pages. Volume 2 is a Bibliographic review of literature in this area. Prepared for Department of Transportation, Office of Urban Transportation Systems.

**Social Impacts of Civil Aviation and Implications for R&D Policy.**

Louis H. MAYO and Civil Aviation Study Group. A report. April 1971, 220 pages. Prepared for the Joint DOT/NASA Civil Aviation R&D Policy Study (TST-30), Washington, D. C. Published by NASA in September 1971 as NASA CR-1988.

**Strategies for the Use of Mass Communications Media in the Technologically Developing Nations.**

Joseph B. MARGOLIN and Educational Policy Group. A report. November 1971, 574 pages in five volumes. Prepared for the U.S. AID/AED, Washington, D. C.

**Technology and Public Policy: The Process of Technology Assessment in the Federal Government.**

Vary T. COATES. A report. July 1972, 650 pages. Available from NTIS as follows:

Summary Report (50 pp.) PB-211455 \$3.75

Vol. 1, Final Report (350 pp.) PB-211453 \$9.00

Vol. 2, Appendices (250 pp.) PB-211454 \$6.75

Prepared and supported in part by the National Science Foundation's program of Research Applied to National Needs (RANN).

**Technology Assessment Applied to Urban Solid Waste Management.**

Henry BRADY and Betsy AMIN-ARSALA. A report. December 1971, 190 pages. Prepared for the National Science Foundation in cooperation with EcoSystems, Inc.

**Technology Assessment Implementation Project.**

Raphael KASPER and Ellis MOTTUR. A report. June 1973, 2 volumes, 522 pages. Prepared for

the National Science Foundation (RANN/ERPA) to develop detailed plans for further, in-depth, interdisciplinary research projects on Society's Acceptance and Implementation of Technology Assessments.

**Technology Assessment: The Proceedings of a Seminar Series.**

Raphael G. KASPAR (editor). A report. July 1969, 164 pages. Available from NTIS under no. N69-40307. [A book based thereon was published by Praeger Publishers, New York in 1971 under Library of Congress—#LC 71-161909. (See below)].

**Technology Assessment: Understanding the Social Consequences of Technological Applications.**

Raphael G. KASPER (editor). New York: Praeger Publishers, 1971. (\$15). Library of Congress 71-161909. A book based on the July 1969 report of the discussions and proceedings of a seminar series on Technology Assessment.

**Technological Innovation for Civilian, Social Purposes.**

Ellis R. MOTTUR. Final report of a two-phase study. July 1971, 553 pages. Prepared for the Office of Invention and Innovation, National Bureau of Standards, and for the U.S. Arms Control and Disarmament Agency. [The first phase report, "The Processes of Technological Innovation: A Conceptual Systems Model" was submitted in January 1968 (297 pages)]. A separate volume of 47 pages is entitled "A Bibliography on Technological Innovation" which may be of benefit to other researchers in this area.

**Toward Increasing the Social Relevance of the Contemporary University.**

Richard F. ERICSON. August 1969, 36 pages. A summary statement of the history and then current status of the Interdisciplinary Systems and Cybernetics Project.

**Trends in Western European Political and Economic Policies, 1969-1985.**

John HANESSIAN, Jr. and International Studies Group. A report. September 1970, 5 volumes, 516 pages. Prepared for Battelle Memorial Institute as part of a contract for the Office of Scientific Research, U.S.A.F.

# **Program Staff**

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Staff listing includes those who have contributed all or a substantial part of their effort to Program activities during the period September 1970 through December 1973. Former members of the Staff are listed with Projects commenced prior to January 1971.

**Louis H. Mayo**

*Director; Vice President for  
Policy Studies and Special Projects;  
Professor of Law*

**Vary T. Coates**

*Associate Director; Senior Staff  
Scientist, and Head of  
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**Guy Black**

*Senior Staff Scientist;  
Professor of Business Economics*

**Dennis W. Brezina**

*Senior Staff Scientist (Political Science)*

**James M. Brown**

*Senior Staff Scientist;  
Professor of Law*

**Steven Ebbin**

*Senior Staff Scientist  
(Environmental Policy)*

**Richard F. Ericson**

*Senior Staff Scientist  
Professor of Management*

**Joseph V. Foa**

*Professor of Engineering and  
Applied Science*

**John Hanessian**

*Senior Staff Scientist  
(Political Science)*

**Guenther Hintze**

*Research Professor of Electrical  
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**Mary A. Holman**

*Associate Professor of Economics*

**Martin V. Jones**

*Special Consultant on  
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**Raphael A. Kasper**  
Senior Staff Scientist  
(Nuclear Engineering)

**Gerald J. Kluempke**  
Executive Secretary, National  
Advisory Council on Supplementary  
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**John M. Logsdon**  
Senior Staff Scientist;  
Director, Graduate Program in  
Science, Technology and Public Policy;  
Associate Professor of Public Affairs  
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**Joseph B. Margolin**  
Senior Staff Scientist;  
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**Milton C. Marney**  
Senior Research Fellow  
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**Roy L. Marx**  
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**Arthur S. Miller**  
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**Marion R. Misch**  
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Deputy Director, Educational Policy Group

**Henry R. Nau**  
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**Charlton R. Price**  
Senior Staff Scientist

**Howard C. Reese**  
Senior Staff Scientist

**Nozer D. Singpurwalla**  
Associate Professor of Operations  
Research

**Charles T. Stewart, Jr.**  
Professor of Economics

**Theodore Suranyi-Unger**  
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**Wesley L. Tennant**  
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**Ernest Weiss**  
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**Betsy Amin-Arsala**

Research Associate (Community Development)

**Thomas Carter**

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(Biomedical Ethics)

**Mark S. Frankel**

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Technology and Public Policy;  
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**Daniel J. Guttman**

Research Associate (Law)

**Charles E. Hansen**

Research Associate  
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**Audrey D. Hassanein**

Research Information Specialist

**Charles Lamb**

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**Judith Naiman**

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**Richard Rice**

Research Associate (Law)

**Virginia Robinson**

Research Assistant (Education)

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**S. Ann Vlachos**

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**Margaret Ware**

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**Frederick B. Wood**

Research Associate; Assistant Professorial  
Lecturer of Management Science

**John J. Zimmerman**

Research Associate  
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**Susanne Bachtel**  
Assistant to the Director

**Gertrude Delman**  
Secretary for Noise Studies

**Dorothy Dier**  
Secretary to Associate Director

**P. Gail Gross**  
Secretary to National Advisory Council  
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**Claudia Howard**  
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**Margo von Kaenel**  
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**Linda Yelton**  
Secretary to Graduate Program in  
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**Ian Bowen** (Undergraduate)  
Periodicals Scanner

**Pamela Brown** (Undergraduate)  
Technical Information Assistant

**M. Elizabeth Burns** (Undergraduate)  
Library Aide

**Robert Curley** (Undergraduate)  
Periodicals Scanner

**Debra Dretar**  
Periodicals Scanner

**Terome Frazier**  
Technical Support Staff  
(Duplication Center)

**Jesse Gibbs**  
Technical Support Staff  
(Duplication Center)